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Wildlife

JANUARY-1958

TEN CENTS

in north carolina

Photo by Jack Dermid

The Junco That Came To Dinner And Stayed

Among man, the domestic cat has a place as a pet and living mousetrap. If well cared for, his occasional escapades after wildlife are negligible. But the free hunting cat—the kitten that was left in the woods to grow up and forage for himself—is an effective predator endowed with keen senses, elliptical pupils for night vision, powerful muscles, needle sharp claws, and teeth designed for tearing flesh. He can sneak through the underbrush with silence and cunning, suddenly to become a ball of living fury as he pounces upon a victim. Why not do wildlife a favor by taking extra, unwanted cats to local animal pounds for humane disposal?

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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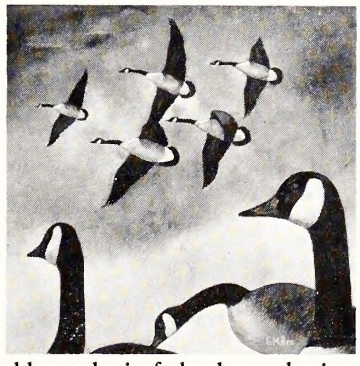

One of Nature's most stirring sights is a flight of Canada geese sweeping the air. Artist G. M. Reu has depicted such a scene in watercolor for our January cover. One usually associates the Canada goose with coastal areas such as Lake Mattamuskeet, winter home of thousands of migratory waterfowl. Inland concentrations are fewer, but Gaddy's Pond in Anson county shows that a refuge can be developed hundreds of miles from the coast. Inside, an article on the Soil Bank Act tells how you may be able to obtain federal cost-sharing for the development of waterfowl habitat.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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THIS IS A SUMMARY OF THE ACTIVITIES IN 1957 BY FISHERIES BIOLOGISTS

Toward Better Fishing in North Carolina

By Duane Raver, Jr.

ONE exasperating aspect about producing better fishing is the creeping slowness with which the process is often accomplished.

Some relief from nail-biting is forthcoming when we accept Nature's lack of speed as an uncompromising reality. With this established, the individuals whose responsibility it is to provide good fishing dive into the struggle. Even the understanding of and the resignation to this rather unhappy fact should not, of course, sway the fishery technician from his appointed rounds. And so, as a rule, it hasn't. The year being completed is no exception—progress in enhancing the fishing in North Carolina under the Federal Aid Program has been and continues to be made. Here's how: Every time you add a plug, a spinning rod, or any other tackle to your outfit, you hand over 10 percent of the price as an excise tax. This in turn reaches the Federal Government and, under the Dingell-Johnson Act, the U. S. Fish and Wildlife Service administers the return of these monies to the various states.

The apportionment of the money is based on the number of fishing licenses sold and the land area in the individual states. Hence the more fishing licenses sold and/or the larger the state, the more money is forthcoming from the U. S. government. The individual states put up one dollar and receive three from Uncle Sam. The money is earmarked by law for use in sport fish restoration, and what can and cannot be done with it is pretty well spelled out in the Act. This, then, is a very much simplified version of the operation, but the program in all its details furnished North Carolina with about $82,-000.00 for use on fishery projects (July 1, 1956-June 30, 1957).

Among the projects of the Fish Division this past year was the reclamation of a number of lakes and ponds through the use of rotenone—a poison that kills fish so that undesirables may be removed before restocking with game fish.

Photo by Jim Lee

Without delving into past history too far, let's look at the accomplishments of the Federal Aid to Fish Program in North Carolina during the year now ending.

One outstanding need throughout the state has been and still continues to be that of detailed information on the major lakes and reservoirs. We need to know what's there before we can recognize the fish management problems. The almost yearly changes in fish populations and their habitats add to the necessity of maintaining close checks on the pulse of these lakes. This of course does not mean that changes for the worse can always be eliminated or that better fishing can always be assured. However, before attempts at producing better fishing can be made each lake and its contents must be known. Obviously, this is quite an order in itself—especially with favorable field conditions lasting as little as four and a half months in the mountains. This year the lake survey program took long strides in the direction of a more complete understanding of North Carolina's fishing waters.

Scattered strategically over the state, nine District Fisheries Investigators, working usually in units of twos and threes, pried into the private lives of some 28 major lakes, sounds, and reservoirs. Now to make a lake cough up its secrets is quite a trick at best. To count critters as elusive as fish demands the combined skills of boatmen, scientists, fishermen, skin divers and sometimes electricians and engineers. How's it done? The strategy varies,

of course, from lake to lake. Take as examples, White Lake in Bladen County where the maximum depth is something less than 20 feet, and at the other extreme, Fontana Reservoir with depths of 300 feet plus. Although procedures vary, basic lake survey methods are quite similar statewide. In order to better evaluate the accomplishments of this program during this year, some of these basic survey methods might well be described.

Careful planning goes into every operation of each biological survey. Types of fish-catching gear are selected for best use in the waters to be sampled; netting locations are picked for accessibility, convenient size, proximity to docks or other facilities; and a general reconnaissance is made before the crew moves in. Generally two or three coves are selected for use as rotenone sample areas. These usually range from one-half to three acres and seldom are more than fifteen feet deep. The size is measured to insure a good kill of all species and a precise amount of rotenone is used. Although this method of sampling leaves something to be desired, it is extremely helpful in providing information about the fish population.

After the preliminary selection of stations and work areas on the lake, the survey crew moves in and usually sets predetermined nets at marked locations. This is best done in the afternoon of the first day's operation. These nets are run the following morning and all fish carefully counted, weighed and measured and recorded. The rotenone sample is taken before noon so that adequate time is allowed for an initial pickup. A small gasoline operated pump distributes the rotenone over the desired area and dip nets are made ready to pick up the sampled fish. The following morning the nets are run again and may be taken up for drying and storage for the next lake. The rotenone sample areas are visited and all floating fish gathered for weighing, measuring, and scale sampling. A third day's pickup of the sample area insures that all fish killed are removed and checked. All the data taken are carefully recorded for later analysis. Supplemental data are obtained by using seines and traps, and one day or more is spent in chemical analysis of the water itself. Very briefly then, this is what goes on during a lake survey and when multiplied by twenty-five or so you can readily see that it adds up to a pretty full season's work.

The payoff of all this activity is, of course, better fishing. This may mean simply letting the fishermen know what "their" lake contains in the way of fish—or where the big ones may be found. This information may turn up in an article similar to this, in the local newspaper, or in a special report. It's important that the information thus made available to the angler be as correct as possible. Even some anglers may disagree with the findings of the biologists.. It may require considerable time to

Photo by Jim Lee

Streams and lakes are sometimes seined by biologists working with anglers in the community who are interested in the improvement of their fishing. Here game fish are being salvaged before the use of rotenone.

come up with the right answers on some lakes, and the release of information prematurely may result in considerable misunderstanding. The District Fisheries Investigator in your area stands ready to help you with fishing information or special problems you may have. He may not always be able to catch fish, but he usually can tell you where they are.

In addition to "where-to-fish" information, the lake surveys are supplying us with fishery management data that will produce better fishing. We are keeping track of the walleyes in the reservoirs in which they were stocked; we're watching the white bass where they were introduced; the striped bass —particularly in Kerr Reservoir—is under surveil-

Farm ponds now dot the countryside of North Carolina, where thousands of landowners have solved their problem of where to fish by constructing ponds on their lands.

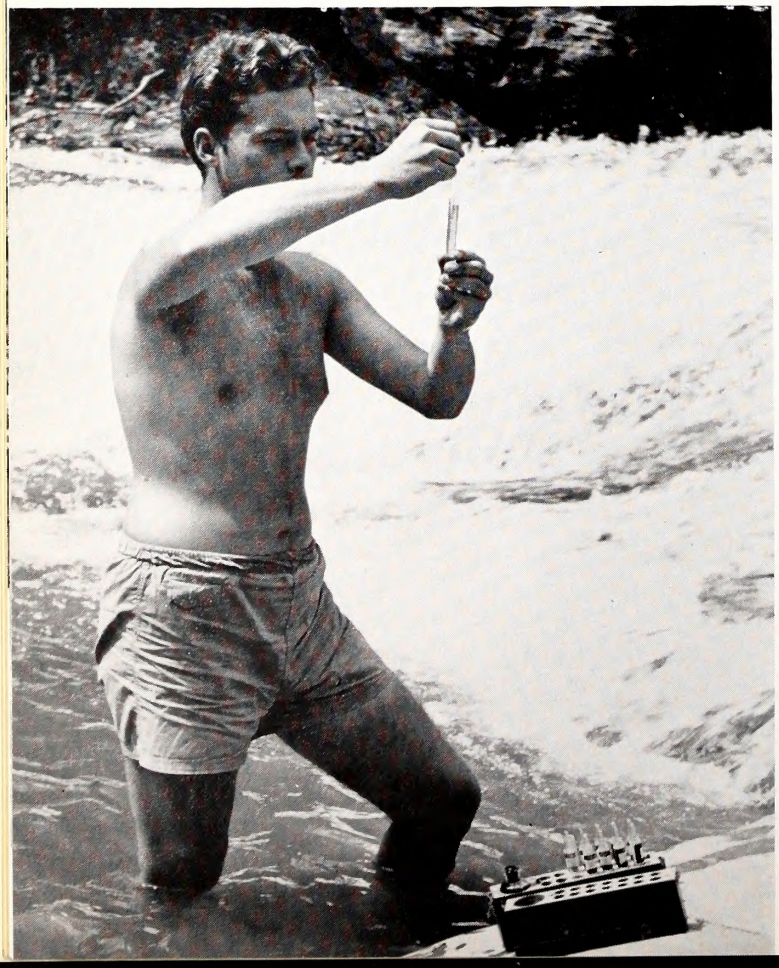
Photo by Jack Dermid

lance; and so on down the list. Relatively new waters such as the Tuckaseigee reservoirs near Sylva are being followed; age-old waters like Currituck Sound are under the watchful eyes of the fish biologist. In all these cases where waters are under study, one prime objective is information that will lead to more satisfactory fishing. In some situations the answers are still undiscovered; in a few, factors may be found that will limit good fishing for many years; but in most, management plans are going into effect with high hopes of eventual returns in better fishing.

The homemade fishing holes—the farm ponds—are still springing up like shining drops of dew on a clover field. But all is not rosy with some of them. During this past season, a Federal Aid project designed to learn what can be done to insure good fishing longer in farm ponds, continued to produce valuable information. Close watch on some seventy-five ponds from the mountains to the coast turned up more pieces to the jigsaw puzzle of the farm pond. Why do some ponds produce fabulous fishing for eight, ten or fifteen years and some never make it at all? The project underway is pursuing the situation primarily from the initial stocking standpoint. This seems logical since it appears that a pond with a good start is easier to handle longer than a pond stocked just "any old way". The thinly worn adage of "an ounce of prevention being worth a pound of cure" seems applicable here. Many of the ponds experimentally stocked are in their third year of fishing and some finished the fourth year. Slowly, the answers are starting to take shape. Reproduction checks in the spring, complete catch records the year 'round, adult and sub-adult fish sampling in the summer and fall, fertilization records—all provide blocks for building sound farm pond management. Each time a seine full of fish is examined from an experimental pond, we draw closer to the solution.

The quality, as well as the quantity, often affects the fishing in a body of water. Water samples indicate the amount of silt and the degree of acidity or alkilinity, factors that may limit fish populations.

Photos by Jack Dermid



The aquatic community living in a stream is of major interest to the men who try to improve fishing. Samples provide information on the kinds of food available and the fish there to eat the food.

Sandwiched in between lake survey activities and farm pond visits are stream surveys. Centered around the colder water areas of the mountains and foothills these studies are designed to follow particularly the smallmouth bass and trout. Some virtually "undiscovered" waters turn up periodically in these routine investigations and a re-distribution of fishing pressure may result in better fishing on all streams concerned. Often new trout producing waters are located and these are placed on the designated public mountain trout waters list, thus receiving more precise fish management.

Since trout are quite important in the fishing program of the State and require somewhat more delicate manipulation and control than do warm water fish, special investigations on the cooperative wildlife management areas continue every year. Every fisherman on these areas checks in at a checking station, leaving his fishing license and obtaining a daily fishing permit. At the end of his fishing day he returns to the station and his fish are carefully recorded along with the water fished, time spent fishing, and other important data. In this way complete checks are made on all trout taken from each stream and the future management program is geared accordingly. It was found, for example, that this past season the number of fishermen on the management areas increased over

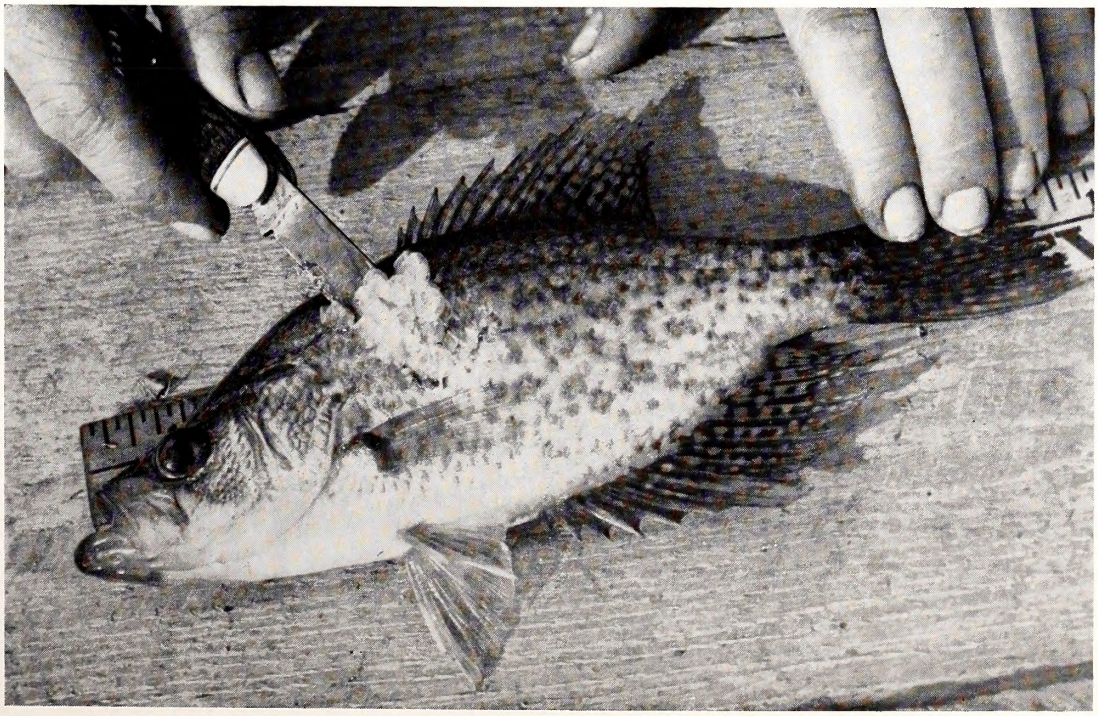
twenty-five percent compared with 1956. Over 30,000 trout anglers caught an average of four fish (almost one per hour) during this past season. Many man-hours were spent in gathering these data, but it pays off in good fishing even in the face of mounting pressure on the streams.

Public waters surrounded by private land or in some other way controlled by private interests are of little use to the fishing public. Federal Aid helped acquire five fishing access areas located on public waters during the past year, thus assuring free public access to good fishing waters.

On the Sandhills Wildlife Management Area near Hoffman are sprinkled some nine artificial lakes up to around sixty acres. The fishing on these lakes has been up and down, and the last few years, mostly down. The Federal Aid program created a project to provide good fishing in these lakes and at the same time discover the best methods of keeping it that way. This past year saw the final stocking of two of the experimental lakes and the first year's fishing on five others. The fishing is free but each angler must check in at the checking station and obtain a permit so that his catch can be recorded at the end of each fishing day. This year, being the first angling season, provided moderately good fishing with the catch mostly small bass around three-quarters of a pound and bluegills a little less than one-quarter of a pound. The size of fish and quality of fishing should pick up next season. These are beautiful little lakes and they may provide the answers to better fishing in "middle-sized" lakes of this type.

Selecting a "typical reservoir" as a special trouble spot was not easy when High Rock Lake was decided upon several years ago. It was picked because of its many problems which are shared with almost all the lower altitude hydroelectric reservoirs of the western Piedmont. What fish and how many were present and how might the angling be improved? These basic problems were attacked from all angles. For one thing, we wanted to know just how good or bad the fishing is. This meant creel census operations during the fishing season. Then what sort of a fish population is producing this fishing? This required intensive netting operations, rotenone sampling and other fish capturing activities. How about the physical and chemical properties of High Rock? Detailed water analyses, soundings, temperature checks, and similar operations paved the way for fish management plans. Although this past year did not complete the study, we are now ready to impart some of the findings to the anglers in the form of a fisherman's map. This work is proceeding and will be completed as soon as possible. In this way perhaps fishing will improve without much additional manipulation. One aspect of the High Rock problem seemed to be an overabundance of crappies. Studies indicated that greater harvest of those fish would stimulate the growth of the other fish. One answer: concentrate the crappies around brush shelters so that more efficient harvest is possible. The experimental brush shelters are providing better crappie fishing right now; how the long-range fishing will be helped remains to be seen.

These have been the high spots of a well-filled year of fish restoration activities designed to provide better fishing. Some may be headed for failure, others already have put fish on your stringer. Time, money, and manpower, combined with know-how —these are tools that build your fishing future.



Scale samples make an open book of the life history of a fish. Each scale carries annual rings that show the age of the fish and the relative amount of growth for each year, indicating whether growth has been slow, normal, or rapid.

Wildlife in the SOIL BANK

WILDLIFE RESOURCES COMMISSION

Participating With

AGRICULTURAL STABILIZATION AND CONSERVATIOIN

and

SOIL CONSERVATION SERVICE

in North Carolina

- WILDLIFE FOOD AND COVER PLANTINGS
- MARSH DEVELOPMENT FOR FUR AND WATERFOWL
- DAMS AND PONDS FOR FISH AND EROSION CONTROL

The Soil Bank Act is designed to help farmers make a direct attack on overproduction and to retire and build up land not presently needed for crops. It consists of two programs—

(1) THE ACREAGE RESERVE, for temporary production cutbacks of "basic" crops now in oversupply;

(2) THE CONSERVATION RESERVE, for a longer shift of cropland and tame hay land to conservation uses.

Of especial value to wildlife is the Conservation Reserve. Through cost-sharing and annual payments, it will assist farmers in establishing wildlife habitat improvements.

PAYMENTS for FARM GAME and FISH CROPS

"What Does It Mean To Me?"

If you are a landowner, the Soil Bank program of the Agricultural Act of 1956 means that the U. S. Department of Agriculture will share with you the cost of taking croplands out of production and applying conservation practices to that land.

If you are a taxpayer, it means that part of the tax that you now pay to support prices on agricultural products being produced in surplus quantities will be spent instead on paying farmers to produce less and to improve the nation's soil, water, forests, and wildlife by conservation practices on those lands taken out of production.

As a sportsman, it means that landowners will produce more farm game through wildlife food and cover plantings, more furbearers and more havens for waterfowl through marsh development, and more fish from farm ponds. These conservation practices will replace the practices of overproduction of farm crops in direct proportion to the participation in the Soil Bank program by landowners.

"What Land Is Eligible For Soil Bank?"

Land eligible to be designated as Conservation Reserve is limited to: (1) cropland, (2) land devoted to tame hay, and (3) land which was tilled or was in regular crop rotation during the year immediately preceding the first year of the contract period if that land constitutes an erosion hazard to the community. Land currently in tillage is eligible if continued tillage will cause an erosion hazard to the community. No cost-sharing will be allowed for land clearing. Plantings must be protected from fire and grazing, but no Federal cost-sharing will be allowed for the construction of fences.

Croplands to be withdrawn from cultivation include land used for the production of crops of which a surplus exists. Corn, cotton, tobacco, peanuts, and soybeans are examples of crops to be withdrawn; land devoted to gardens for home consumption, orchards, and crops grown for cover only are not eligible.

Minimum acreages for participation vary with the conservation practice and the standards of the county Agricultural Stabilization and Conservation committee. The minimum size of an area to be placed in wildlife food plants such as shrub lespedeza is one-half acre. From the biological point of view the smallest marsh area to be developed should be at least one acre. The minimum size of a farm pond under this program will be one-half acre. These figures are for individual units based on the minimum practical size. County ASC committees will set minimum acreages per farm, and these may be somewhat larger. These farm acreages may differ from one county to another.

"How Do I Apply For Soil Bank?"

Your local Agricultural Stabilization and Conservation (ASC) Committee representative can provide information on the Soil Bank program and the contract terms that apply locally.

North Carolina Wildlife Resources Commission biologists and Soil Conservation Service technicians will be available for necessary assistance in planning conservation programs, and will aid ASC committees in checking completed work on wildlife food and cover plantings and marsh and pond development. Soil Conservation Service technicians will prepare and approve plans for farm ponds based on their studies. They will provide detailed soil studies, plans, calculations, and information on the proposed dam, spillways, and reservoir. And they will handle applications for the fish.

In order to qualify for Federal cost-sharing, the landowner is asked to agree to certain conditions. These conditions can be modified should it become necessary to return the land to cultivation, but in the meantime the land will be devoted to conservation.

● Wildlife Food And Cover Plantings

Two types of plantings will be recognized in the Soil Bank program, seedling and seed plantings. Cost-sharing will be provided for the establishment of the plantings, and the landowner will be paid up to $10 per acre per year for maintaining these plantings (keeping the land out of production) during the contract period of from five to ten years.

To qualify for cost-sharing the participant is required to carry out all cultural and planting operations necessary for a successful stand. Multiflora rose seedlings are to be planted in a single row with plants one foot apart. The plantings are to be fertilized at the rate of ten pounds of 6-8-6 or 5-10-5 fertilizer per 100 feet. Plantings are to be established during the winter or early spring when plants are dormant. Plants will be provided by the Wildlife Resources Commission as long as the supply lasts.

Shrub lespedeza may be planted in patches of not less than one-half acre if planted alone, or one-quarter acre when planted with a like amount or more of sericea lespedeza or other permanent vegetative cover such as ladino clover, Kentucky-31 fescue, or orchard grass. Seedling plantings should be not less than five rows wide, rows to be placed two to three feet apart with plants spaced two feet apart in the row. This will mean about 8,000 plants per acre, or 2,000 plants per quarter-acre. Fertilizer (0-14-14 or 2-12-12) should be applied at the rate of 100 pounds per quarter acre. As with multiflora rose, seedlings of shrub lespedeza will be available from the Wildlife Commission's Wildlife Foods Nursery at Chapel Hill through the usual channels while the supply lasts.

Federal cost-sharing is available for plantings of various seeds alone or with shrub lespedeza. Such seed plantings include the three legume-grass combinations mentioned for planting with shrub lespedeza and sericea lespedeza, as well as direct seeding of shrub lespedeza. Annual legumes or grasses or annual seed mixtures may also be planted. All seeding must be in accordance with good farming practices, including a well-prepared seedbed, a full seeding of adapted seed, the application of lime, phosphate and potash where necessary to assure a good stand and good growth, and recommended seeding rates and planting dates should be followed. Volunteer stands will not qualify. No harvesting or grazing of plantings will be allowed under the terms of the contract.

How do you determine federal cost-sharing for establishing wildlife food and cover practices (G-1)? Here is a typical situation that might occur:

Mr. Jones in Cumberland County desires to place four acres in the conservation reserve phase of the Soil Bank program and wishes to know approximately the amount of the federal cost share he will receive. He plans to plant:

1 acre of shrub lespedeza (four, one-fourth acre patches)
1 acre of sericea lespedeza (four, one-fourth acre patches)
1 acre of fescue and ladino (four, one-fourth acre patches)
1 acre of soybeans (four, one-fourth acre patches)

4 acres—total to be planted.

Mr. Jones expects to receive the shrub lespedeza seedlings free from the North Carolina Wildlife Resources Commission and will buy the seed necessary for establishing the seed plantings. He will be reimbursed for 80 per cent of the cost of the seed, provided that 80 percent does not exceed $6.00 per acre.

The average total cost share in Cumberland County is:

$ 60.00 per acre for establishing shrub lespedeza*
25.90 per acre for establishing fescue and ladino
21.92 per acre for establishing sericea lespedeza
18.25 per acre for establishing soybeans

$126.07 (Total amount Mr. Jones will receive).

*** The rate for establishing shrub lespedeza may be as high as $60.00 per acre provided that the total amount for the four acres ($126.07) which Mr. Jones wishes to plant does not exceed four times the maximum rate per acre for establishing an acre of permanent vegetative cover (A-2). The maximum rate for establishing an acre of A-2 in Cumberland County is $32.90. Four times this rate is $131.60, thus Mr. Jones is within the maximum limit and will receive the above indicated $126.07 for the four acres of G-1 which he wishes to plant.**

In addition to receiving $126.07 for establishing four acres of wildlife food and cover, Mr. Jones will receive an annual rental of $40.00 for maintaining the plantings during the contract period of from five to ten years.

● Marsh Development For Fur And Waterfowl

Eligible land may be taken out of production under the Soil Bank program for the development of shallow water areas to improve habitat for waterfowl, fur animals and other wildlife as well as the restoration of former marshlands that have been drained. This is to be accomplished by installing earth plugs or water control structures in drainage ditches. The same eligibility requirements apply as in other conservation reserve practices.

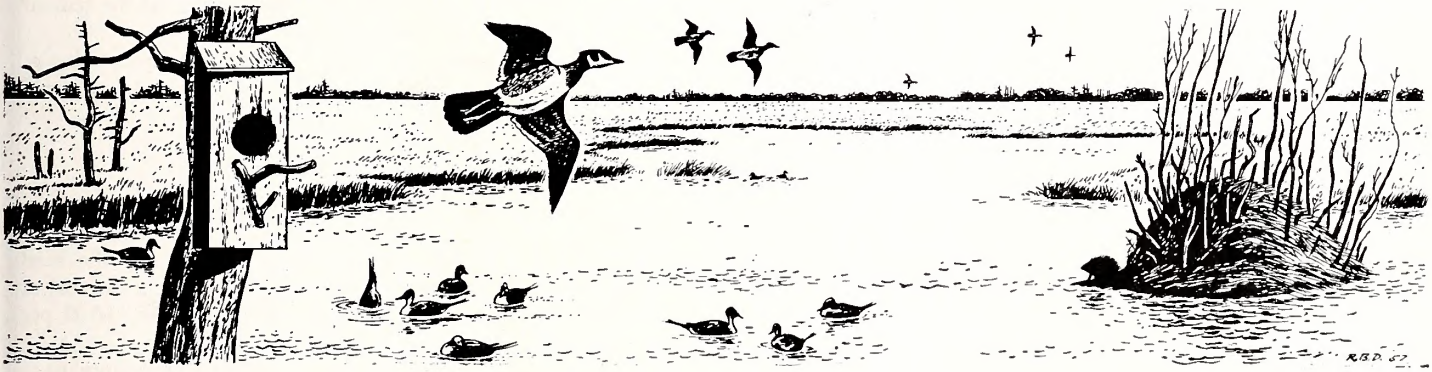
Development shall consist of the creation of shallow water or marsh areas through the construction of adequate dikes, dams, or levees, provision for sources of water including canals or reservoirs, and control structures which will permit drainage and filling of the marsh. The restoration of drained marshes can usually be accomplished through the

same methods to be used in establishing new areas. Two general practices may be followed after filling has been made possible. An annual draw-down after April 1 permits fertilization and seeding. After October 1, when the seed crop has matured, flooding for the winter months follows. Where annual draw-downs are not feasible, an original planting of aquatic plants can be made to permanently establish a food supply in the marsh.

Where annual draw-downs are anticipated, a water level of from six to twelve inches should be planned. Light disking and proper water level control will allow natural plants such as the smartweeds and wild millet to become established. Where seeding is necessary, a properly prepared seedbed may be planted in millets, cowpeas, and other waterfowl foods.

In permanent or semipermanent waters, depths may range up to five feet, with fluctuations during the year being desirable if low levels can be maintained during the growing season. Watershield, pondweed, widgeon grass, bulrush, and the smartweeds are among the recommended plants.

The maximum Federal cost share will be 80% of construction costs up to $625, 40% of the costs from $625 to $1000, and 20% of additional costs to a maximum Federal cost share of $1500. Federal participation will be limited to building the water storage facility and the annual Conservation Reserve payment of up to $10 per acre during the contract period.



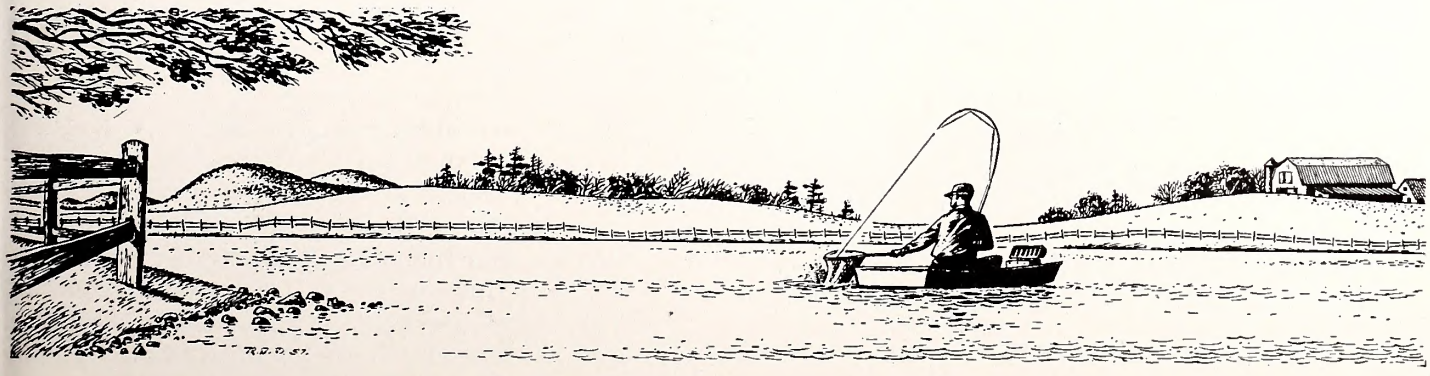
● Dams And Ponds For Fish And Erosion Control

This part of the Soil Bank program permits the landowner to take eligible land from production and with Soil Bank cost-sharing build farm ponds for the primary purpose of fish production. In addition to assistance in building the pond, he will receive the Conservation Reserve annual payment of up to $10 per acre per year during the contract period.

The Soil Conservation Service technician is responsible for determining if the pond is needed and is practical on the farm, selecting the site, lay-out of the pond, supervision of construction, and certification of the County ASC Committee.

As with the Federal cost-share of marsh restoration, the maximum Soil Bank aid will be 80% of the first $625, 40% of the excess up to $100, and 20% of additional costs to a maximum Federal cost-share of $1500.

Sites will not be approved if erosion of the watershed produces serious discoloration of the water and tends to materially reduce the storage capacity of the reservoir. The resorvoir will have to store sufficient water at all times to meet the needs of the fish, and a minimum surface area of one-half acre, a minimum depth at the dam of six feet, and an average depth of not less than 2½ feet will be required. Cattle may not use the pond, nor may water from the pond be diverted for irrigation under the terms of the Soil Bank contract.



NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

1958 Fishing Licenses, Fishing Rules Ready

The 1958 fishing licenses are now on sale at license dealers throughout North Carolina, and fishing regulations for the 1958 season are available from license dealers. Important changes in the regulations over last year's rules include removing the closed season on trout in the impounded waters of power reservoirs open to the public for fishing, and raising the creel limit on white bass from eight to fifteen.

Upland Game Habitat Plants Ready For Distribution

The Wildlife Resources Commission has several million of shrub lespedeza seedlings, a million multiflora rose seedlings and tons of sericea lespedeza and mixed annual seeds available for free distribution to farmers and landowners. District game biologists and county farm game helpers are already contacting farmers and landowners regarding habitat improvement work that needs to be done to increase farm game populations.

Shrub materials will be available and should be planted in January and February. Annual seeds will be available in April. Applications for the materials are now available, and the materials will be distributed on a first-come-first-served basis. Applications are obtainable from district biologists, county wildlife protectors, county soil conservationists, or by writing to Farm Game, Box 2919, Raleigh.

Squirrel Nest Box Program In Third Year

The Wildlife Commission's squirrel nest box program is now under way for the third consecutive year. Conservation groups or individuals may obtain application forms and construction plans by writing to: Squirrel Nest Box Program, Box 2919, Raleigh. Persons or groups constructing and placing boxes according to specifications will be compensated by the Commission for time and materials.

At Uwharrie Wildlife Management Area

BOW HUNTERS GO INTO ACTION

Photo Feature by Jack Dermid

EACH year more and more Tar Heels are answering the call of Robin Hood and accepting the challenge of the bow and arrow for taking both big and small game.

This season the Wildlife Resources Commission opened three of its wildlife management areas exclusively to archers for seven days, November 9-16, prior to the opening of the regular deer hunts. Bowmen appeared at the checking stations with unlimited enthusiasm for their sport. Many were dedicated to the bow and would not take deer by other means; some were experienced deer hunters seeking thrills greater than they had known with a rifle; others were hunting for the first time. During the seven-day period, 1,260 archers entered Pisgah, Daniel Boone, and Uwharrie Wildlife Management Areas to bag a total of five deer—two at Uwharrie, three at Daniel Boone.

Lloyd Garner of Asheboro (above) takes aim beside one of Uwharrie's many pastures which are maintained for deer. Note the rack for carrying extra arrows. The modern bow packs surprising power. In a hunt described in a recent issue of "Outdoor Life," archer Fred Bear, using a 65-pound bow, shot a razorhead arrow completely through a grizzly bear. The bear dropped dead after running 80 yards.

Uwharrie bore the brunt of the hunting pressure. The accompanying photos were made at Uwharrie on November 13, the day set aside for taking antlerless deer, when 230 archers checked in. Although no deer were killed then, many deer were seen. In fact, 20 hunters interviewed at random said they saw a total of 163 deer and were able to shoot 14 times at them. Various reasons were given for misses: brush deflected arrow, too eager, running target, wasn't ready.

The total kill in all areas may seem small, but success with a bow is many times more difficult than with a rifle. The bow hunter has to get close to his target, a feat which requires considerable stalking skill and woods know-how with deer. Instead of conspicuous clothes, the bowman resorts to

Turn Page For More Photos

Eddie Gray of Greensboro, who has killed seven bucks with a rifle and one with bow and arrow during past seasons, found refuge compartment maps and trail signs helpful in planning hunt strategy.

For a midday siesta, Johnny Prevo of Thomasville chose the comfort of his auto. During seven hunting days, 690 archery permits were issued at Uwharrie.

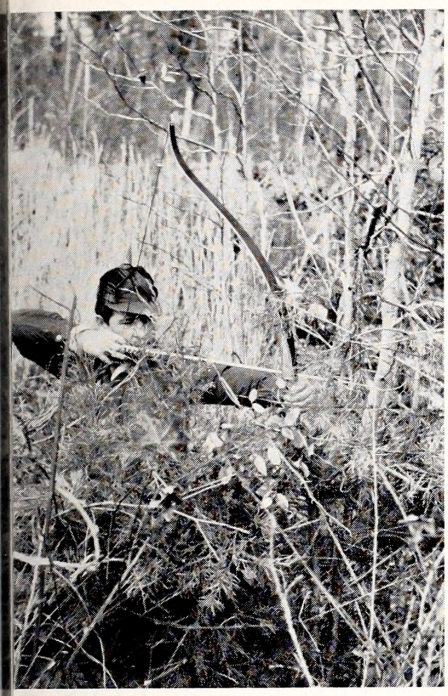
A sawdust pile provided Ralph Conner of Lincolnton with a soft and snug blind that overlooked a deer trail.

Bow Hunters (Cont.)

camouflage; he has to become a part of
Still hunting from a selected vantage poi
likely to prove successful. The archer
tree, atop a sawdust pile, or sits quie
shadows. Deer cannot be shot as freely
gun, and there is no automatic magazine
and third shots. The archer has to wait
reasonably sure of his first arrow, unti
comes within range, until the arrow's p

Jerry Shiffert of Winston-Salem wears camouflag
ing stool while still hunting. Shiffert belongs to l
70 members. Archers have state-wide organizatio
"The Tackle Box."

While these Asheboro hunters paused to make a pot of coffee, two does were feeding in a pasture within 75 yards of them. A heavy stalk resulted in two shot; two misses. Trails of Uwharrie have picturesque names.



'd Black of High Point constructed a blind beside a pasture and hid there for ght hours.

This 120-pound buck, one of two killed by archers at Uwharris, was shot by L. H. Arey of Salisbury on opening day.

of obstructions. If any hunter has the right to have buck fever, the archer has.

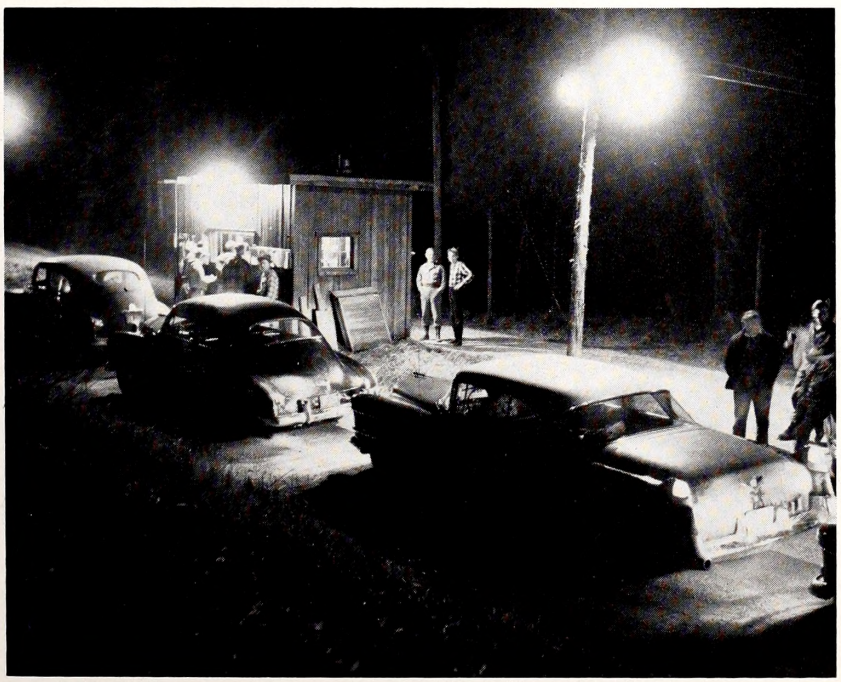
The bow is definitely an adequate weapon for taking deer. Its deadliness has been proved on such animals as grizzly bear, elk, and even bison. The archer fast and accurate enough can tumble a pheasant or Canada goose from the sky, and the taking of squirrel and rabbit is an everyday accomplishment for many bowmen.

Bow hunting is a modern challenge, a sport that requires considerable skill and enforces conservation through its difficulty.

Electrician Bill Cross of Asheboro put his occupational skills to use and perched upon the side of an oak with spurs and safety belt for five hours.

sits on fold- club of over h magazine:

Most bowmen lingered as long as possible and checked out after dark. On antlerless deer day, 230 archers entered Uwharrie. Most of them saw plenty of deer; many had shots; but no deer were killed.



PART IV

The MUSEUM SCHOOL

By Jim Lee

TAKE a walk along the edge of a stream or swamp, or over a wooded hill during almost any time of the year. With very little difficulty you can fill your pockets or knapsack with many items that can be displayed in the school museum. However, few of the things that you find will be ready to pop into a case without further ado. Dead animals soon begin to give off unpleasant odors; plants wither and shrivel. If the collection is to have permanent value, something must be done to insure permanence.

Insects are perhaps the easiest to preserve, next to seashells. Butterflies and moths may be pinned by strips of paper to a V-shaped board with a groove wide enough to hold the body. After a few days of drying, the specimen is ready to be placed in its storage container. Other small insects may be dried on a single pin stuck in a balsa block. Some insects, such as the fairly common rhinocerous beetle, are filled with tissue and will decay. These may be soaked in a dilute or full-strength solution of formaldehyde (embalming fluid) and then dried, or they may be kept in a small bottle of alcohol or dilute formaldehyde. Some insects, such as ants, do not lend themselves to pinning and must be kept in alcohol permanently.

Snakes are very popular museum animals, and need not be kept alive to be of value. One method of preparing snakes can also be used with frogs, salamanders, lizards, and fish: Construct a shallow box, an inch or so deep and large enough to accommodate the specimen when spread out to the desired position. Fill the box with very wet molding plaster or dental plaster, and immediately put the dead specimen, underside up, in the plaster so that it is covered almost completely. (With fish, place the specimen on its side deep enough into the plaster so that the wet plaster laps over the fins.) Within a matter of an hour the plaster will have hardened. With a sharp knife, trim away the excess plaster so that the specimen can be lifted out. The plaster heats itself as it hardens, thus hastening decomposition. A snake with a triangular head, such as the copperhead, will become soft enough to pull through a hole the size of its neck, so that all projecting parts of the animal do not have to be completely cut free to permit removal from the plaster.

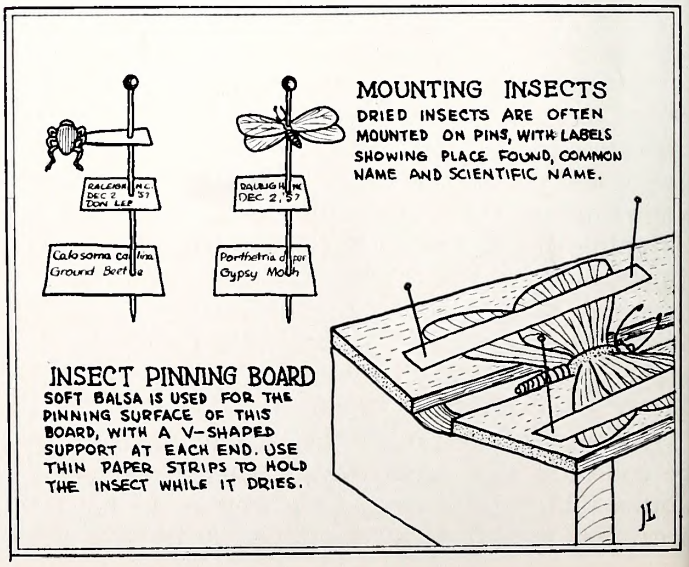
The plaster will cast every scale and wrinkle of the original. Liquid latex, available from art supply stores, can then be brushed or poured into the mold, one layer at a time. Within a few days the mold can be filled. The rubber model, when removed, may be painted with oil paints or textile colors to closely resemble the original. Such complicated casts as snakes hatching from their eggs and frogs with throats extended have been prepared by the State Museum in Raleigh.

Snakes and other specimens may also be preserved in either formaldehyde or alcohol. Small olive or pickle jars may be used temporarily, but for permanent collections plastic-topped jars should be used. Ordinary metal jar lids rust after a few years in contact with preserving solutions. Although alcohol is more readily obtained, formaldehyde is generally preferred for preserving. Alcohol tends to leach out the colors. With both solutions, it is necessary to inject some of the liquid into the body cavities with a hypodermic needle and syringe. Animals from which plaster casts are to be made should not be injected with formaldehype beforehand, as the embalming fluid makes the tissues rigid very rapidly.

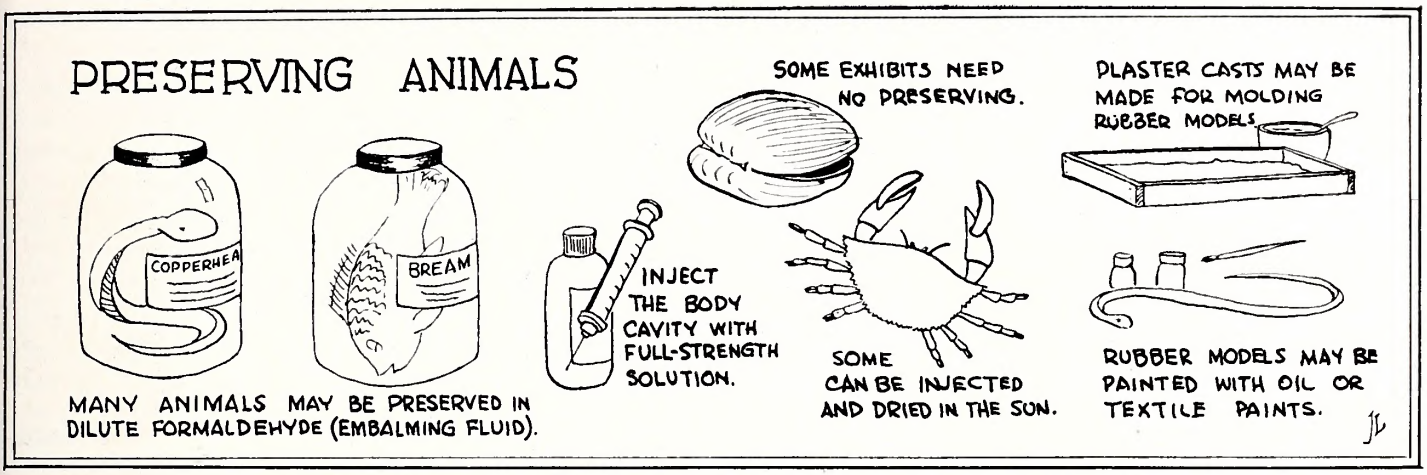
Formaldehyde may be purchased in a concentrated solution, which is actually about 30 percent formaldehyde. This should be further diluted, using

It is important that records be kept on where and when insects and other specimens are collected, so devise some system of keeping information with the material during preservation.

Illustrations by Jim Lee



North Carolina State Library
Raleigh



The museum preparator must decide for himself whether specimens are to be used for display in life-like habitat groups or for study. The preparation for study only is much simpler; most animals can be preserved in formaldehyde with little effort.

about five parts of water to one part of the concentrated solution for permanent use. Injections should be of the concentrated solution.

Crabs and starfish may be preserved whole, and lend themselves very well to museum display. The freshly killed specimen should be injected with formaldehyde in the claws and body, and then soaked in a dilute solution for a couple of days. Then place the animal in the sun to dry for a day or so. After the surface has completely dried, liberally paint the entire specimen with clear varnish or shellac. When the coating has dried, pin or sew the animal to a soft board. The combination of embalming and painting will preserve the colors indefinitely, and if properly done there will be no odor.

Seashells seldom present any problem, but occasionally a specimen is collected with the animal still in it. Conchs picked up on the beach after a storm, for example, may need to be cleaned. Hang the conch in the water beneath a pier and let the fish and crabs clean the shell for you. Starfish and sand dollars, freshly killed, will retain their colors and fragile parts after soaking in formaldehyde and painting with shellac.

Mammals and birds present a challenge to the collector. Unless one is a taxidermist, the best that the collector can do is make study skins. These are simply the skins of the specimens, filled with cotton and laid out to show size and markings. To prepare a mount resembling the animal in life requires many tedious hours of work and considerable knowledge of anatomy as well as natural history. Skinning the bird or mammal is fairly simple, requiring only a sharp knife or razor blade and a pair of tweezers. After all fat has been cleaned away, borax is rubbed into the inside of the skin to prevent moth damage. The skull is saved, thoroughly cleaned, dried and kept with the skin.

Animals for the preparation of study skins may be collected with small traps placed in old fields. Cotton rats, enemies of quail as well as the farmer, are often abundant in abandoned fields and will provide ample material for any number of young scientists. Capturing larger mammals for study skins is not recommended; without proper permits it is sometimes illegal.

Although nearly every bird is protected, frequently a large number of dead birds may be picked up at the base of radio towers and airport beacon lights. Particularly during spring and fall migrations, thousands of songbirds collide with radio towers or are confused by the bright lights of airports. Birds collected should be fresh; after decomposition begins to set in the feathers slip easily from the skin and the specimens are of little use.

Museum preparation requires more than just a dead animal and a razor blade or bottle of alcohol. Specimens being skinned or pickled sometimes give off objectionable odors; many people are uncomfortable in the presence of snakes no matter how dead. A room is needed where work in progress can be left undisturbed, and where dangerous tools and solutions will not fall into unwary hands. Formaldehyde is deadly poisonous and hypodermic needles are not playthings. However, many youngsters, even of junior high school age, can learn to respect the equipment that they are using and perform many tasks involved in museum preparation.

Flowering plants may be preserved for identification purposes by pressing. A plant press consists of alternating layers of newspaper and corrugated cardboard, with a stiff binder of plywood or wood slats. Plants, complete with root systems, are carefully laid out to show the important parts, and pressed for several days until dry. The dried plants are then mounted with tape on large blotters of a standard size so that they may be filed.

Biological supply houses publish comprehensive catalogs that list nearly everything the museum preparator needs. Prices are reasonable for student kits, designed for college laboratory courses, and many chemicals can be obtained. Drug stores often carry many of the chemicals needed, and are a good source of small bottles needed for insect collections.

—Nine years of progress in FARM GAME MANAGEMENT

By Robert B. Hazel and Donald J. Hankla

In the first of three articles the authors discussed the beginnings of the present farm game program in North Carolina, initiated in 1948. After surveys showed that 51.2 percent of the sportsmen in North Carolina preferred to hunt farm game, the Wildlife Resources Commission began a long-range program to provide more game through better food and cover. The first article followed the development of the program to 1953.

EFFORTS were continued to adjust the program to the varying needs in the various districts. Observations made as a result of the distribution of *Lespedeza japonica intermedia* in 1952 indicated that this variety too was unsatisfactory in the mountain counties of North Carolina. It matured early but did not hold its seed well and did not produce the quantity of seed desired. In the spring of 1953 the Soil Conservation Service distributed a variety of *Lespedeza japonica* known as Virginia 74 which proved to be more satisfactory.

It was noted during 1953 that the amounts of materials being distributed in the various wildlife districts reflected the need for wildlife food and cover plantings in those particular areas. Much of the rose and lespedeza seedling materials was being requested for the Piedmont area of North Carolina where livestock and dairy farming were making heavy inroads on farm game habitat.

1954: In 1954 the amount of materials distributed decreased somewhat as biologists and County Soil Conservationists stressed planting quality. Inspection of 1954 plantings revealed that 63 percent and 84 percent respectively of shrub lespedeza and multi-flora rose plantings had a survival rate of 70 percent or better and 16.9 percent and 8.1 percent respectively of the cooperators who received these materials did not plant them. From this it would appear that efforts toward quality plantings were not overly effective when attempted by our limited personnel.

It was observed during the past six-year period that as the number of farmer cooperators and amounts of materials distributed increased, planting success with few exceptions became generally poorer. Quality was being sacrificed for quantity. It became apparent that the few biologists assigned to the farm game program did not have time to confer with the increased number of interested farmers who requested planting materials and

Multiflora rose seedlings are grown under cover for some time at the Chapel Hill nursery. Methods of handling planting materials were developed from experience gained over the years.

Bicolor lespedeza seeds were machine planted during the later years at the Sandhills Wildlife Management Area before all nursery operations were consolidated at Chapel Hill.

technical information regarding farm game management. Also apparent was the fact that if the program was to be continued on a state-wide basis and the efficiency rating increased to a more desirable level, the amount of individual attention and follow-up work given to individual farmers must be increased.

During the spring of 1954 the Wildlife Resources Commission moved its nursery from the Sandhills Wildlife Management Area to Chapel Hill, to the site of a former Soil Conservation Service nursery. The better soil at this location made it possible to expand production to include all materials distributed by the Commission. The opportunities for plant observational work were also increased and this phase of activity was considerably expanded. Additional test areas were selected at four different locations in the state representing various soil types and climate conditions. Approximately 110 species and varieties of potential wildlife food and cover plant species were tested in rod rows. Annuals as well as perennial materials were planted for observation and selections of various shrub lespedezas were chosen for further study.

During the spring of 1954, the Soil Conservation Service made available a limited quantity of a newly developed strain of shrub lespedeza known as Virginia 70 which exhibited many desirable traits. VA-70 died back to the ground each year, stooled out from the crown in a very prolific manner, produced seed at a rate comparable to bicolor, and was readily adaptable to a wider variety of soils and climatic conditions. In addition to the establishment of a seed block for increase purposes, 390,000 VA-70 seedlings were purchased for distribution to cooperators in mountain counties.

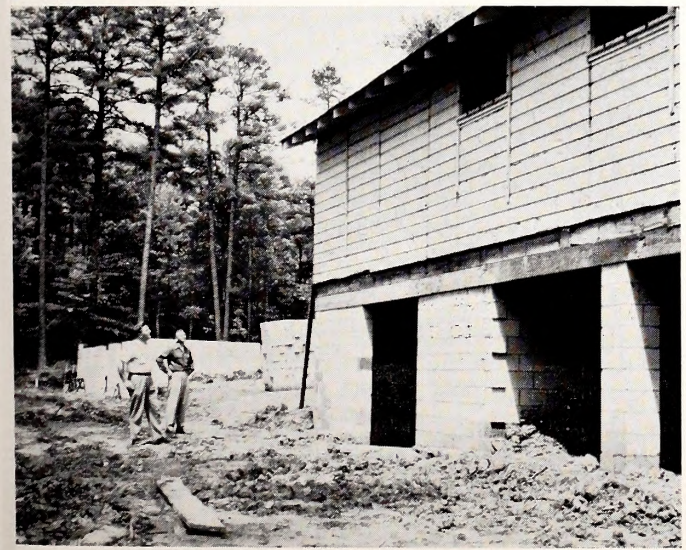
1955: During the year 1955 the amount of materials distributed as well as the number of cooperators who received planting materials increased somewhat as more personnel were added to the project.

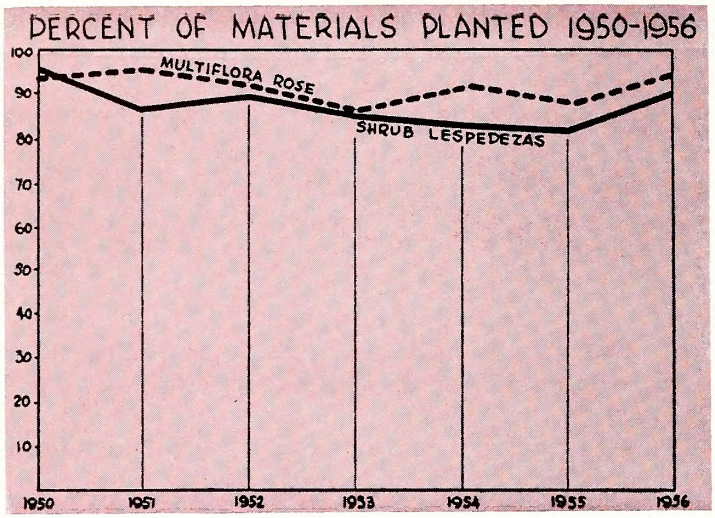
As a result of an evaluation study completed in 1954 (to be discussed in detail later) it was learned that the plantings established in conjunction with the farm game habitat program were being utilized to a considerable degree by quail and rabbits, and were, therefore, of proven value. Farmers, landowners, sportsmen, and the North Carolina Wildlife Resources Commission wanted to further expand the program; however, they wanted some assurance that the materials distributed in an expanded program would be planted and the current 60-70 percent of the plantings rated as successful be increased.

To attain improved planting success, eight farm game helpers were hired on an experimental basis to assist the district biologists. An effort was made to select individuals who were recognized as leaders in their communities and counties and who were familiar with the program. Each was hired on a temporary basis to work part time during the distribution and planting season. It was thought that such an individual could visit the community leaders and promote farm game habitat improvement work on a community level, resulting in a concentration of plantings in one particular area—a concentration far more effective than widely scattered plantings. His duties were to accept applications for planting materials, deliver materials and provide farmers with planting instructions, and do follow-up work to see that the materials were actually planted.

Although this phase of the program was initiated late in the 1955 season, enough was accomplished by the eight farm game helpers to indicate that this type of assistance could be used to advantage in many counties in North Carolina.

The nursery at Chapel Hill, formerly operated by the Soil Conservation Service, was found to be well suited for requirements of the program. Below is a new seed processing building; at the right is a general view of the area where shrub lespedezas are grown.



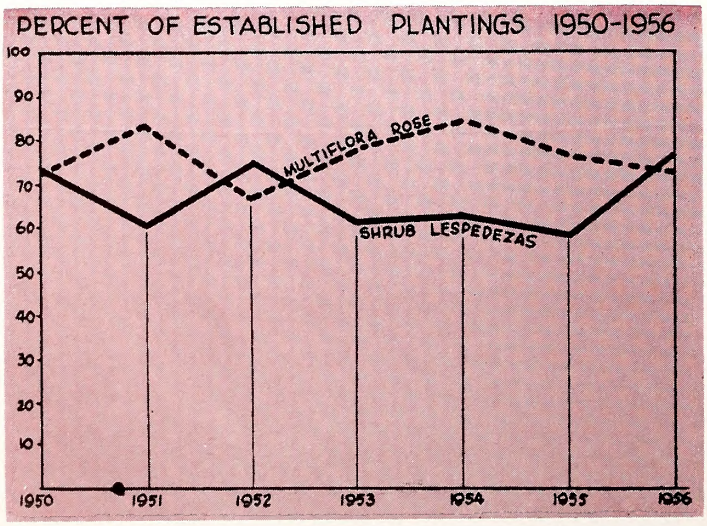


As the number of cooperators increased, the percent of materials received and actually planted declined. When a number of part-time farm game workers were employed, their personal attention resulted in more farmers planting the materials that they had requested.

In 1955 the use of annuals for the purpose of providing a fall food supply for farm game was included in the program. In previous years annual mixed seed had been distributed in a separate program, however annuals had not been generally recommended because they were good for only one year. The use of annuals was increased in 1955, for it was realized that farm game management was much more effective where both animals and preennials were used in a coordinated planting program.

1956: During 1956, the amount of farm game food and cover planting materials distributed was increased over the previous year by about 23 percent, and the number of farmer cooperators was increased 31 percent. This was due in part to the hiring of 49 farm game helpers for part-time work during the distribution and planting season. They averaged working one month each and it was thought that these workers were a very worthwhile addition to the farm game program. The people who did not plant their shrub lespedeza decreased from 18 percent in 1955 to 10.7 percent in 1956, and the people who did not plant their rose seedlings decreased from 12.5 percent to 5.7 percent.

Planting success fluctuated during the period, with more attention generally given to multiflora rose. Planting success, considered as 70% survival, climbed when the temporary farm game workers provided on-the-spot advice and assistance.



1957: In 1957 the farm game program was further expanded. Eighty farm game helpers were hired to work in as many counties, contacting farmers regarding farm game habitat development work, delivering planting materials, doing follow-up work to assure a high percent of planting success and contacting cooperators who had not established plantings during recent years to encourage maintenance.

The total amount of planting materials distributed was considerably greater than the previous year; however, the increase was made up of shrub lespedeza seed which was substituted for seedlings due to a shortage of plants.

New species designed for particular requirements have been tested at the nursery. Biologists have been able to study the experimental species under field condition, including actual use by quail.

The farm game program was modified to include the fencing of certain wildlife food and cover plantings which warranted protection. In some sections of North Carolina the agricultural economy is geared to livestock production and dairying. All open land not enclosed by a fence is intensely grazed. Wildlife plantings although established with the best of intentions are very often destroyed by grazing. To overcome this difficulty the Wildlife Commission agreed to furnish and erect fences around plantings which met certain specifications. In order to qualify for fencing, the landowner must be a member of a Community Farm Game Development Group, must sign an agreement to protect and maintain the planting, the planting to be fenced must be a minimum of ½-acre in size, planted in a

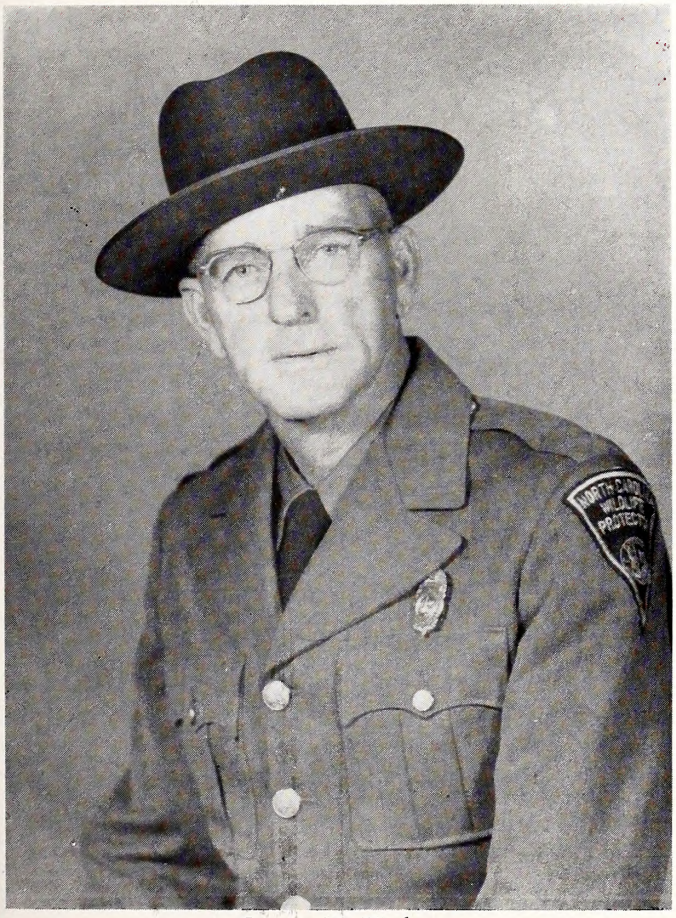
recommended location and pattern, and have a satisfactory survival rating the first spring following establishment.

A further modification of the farm game program which occurred in 1957 was the overseeding of shrub lespedeza plantings with annual lespedeza such as Kobe or Korean. Normally shrub lespedeza plantings do not produce seed until the second year after establishment; however, it is desirable to have a food supply available the first year. Annual lespedeza provides a fall food supply each year and reseeds itself until shaded out by the shrubs.

A third modification of the program was the preparation of farm plans designed for intensive farm game mangement. The average farmer in North Carolina is neither interested enough or wealthy enough to intensively manage his farm for game; however, several landowners, especially those who do not depend on their farm for a livelihood, have expressed a desire to accomplish intensive management. Over fifty management plans were drafted during the first few months this service was offered. Plans were based on accepted wildlife management practices with emphasis on habitat improvement plantings of annuals and perennials.

It is thought that continued emphasis should be placed on acquainting farmers with basic farm game management practices. There are many practices which could be adopted with little extra effort on the part of farmers if pointed out in a management plan. Among these are such items as strips of grain left in odd corners or adjacent to hedgerows; crops rotated to provide fallow fields, corn and other stubble left through the winter before being plowed under; mowing activities staggered to provide farm game with sufficient time to bring off a litter or brood; and the control of stray dogs and cats. These practices should be accomplished along with the establishment of supplementary plantings of annuals and perennials.

PROTECTOR OF THE MONTH



George N. Hudson

Mr. George N. Hudson, Bayboro, North Carolina, Wildlife Protector assigned to District 2, was born in Hyde County at Swanquarter, North Carolina on February 14, 1902. He received his education at Swanquarter and served as Chief of Police at Bath, the oldest town in the State. On February 16, 1949, he resigned from this position and went to work with the Wildlife Resources Commission. "Captain George," as he is called, operates the state patrol boat, the "Sea Peep."

A member of Bayboro Masonic Lodge #331, Bayboro Chapter #189, Order of the Eastern Star, and the Christian Church of Pantego, Mr. Hudson is married to the former Frances Sheppard of Washington, North Carolina, and they have five children, as well as five grandchildren.

ENFORCEMENT RECORD FOR NOVEMBER

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of November, 1957.

Persons checked	**40,001**
Total prosecutions	**818**
Total convictions	**786**
Total cases not guilty	**17**
Total cases nol prossed	**15**
Total fines collected	**$8,036.10**
Total costs collected	**$5,324.14**

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW

Question: Is it lawful to keep legally killed game in a deep freeze after the regular hunting season?

Answer: Within the possession limits specified, lawfully taken game birds and game animals may be possessed during closed season if a written declaration of the kinds and amounts possessed is filed with the local wildlife protector within ten days after the close of the season during which they were taken.

One of the requirements of the 4-H Wildlife Conservation Project is the planting of wildlife food or cover plants, thus providing the youngsters with actual experience in practical conservation.

Youth and Conservation

4-H PROJECTS

By Bill Hamnett

WILDLIFE is but a part of the soil's production and any farm can be made to produce a crop of wildlife which should be welcome, without interfering with good land management.

This premise has been accepted by 4-H boys and girls since 16,250 have participated in the 4-H Wildlife Conservation Project during the past 6 years. Realizing what each participant should do as a minimum to satisfy the completion of a project, it stands to reason the wildlife resources of our state have been materially benefitted.

In the project there are 11 units, and everyone is to take unit 1 or 2 before taking one or more of the other units. The first unit is habitat improvement which means bicolor lespedeza and sericea is set-out along suitable field borders or multiflora rose is developed as a "living" fence. In unit 2 wildlife food patches are developed by utilizing old tobacco plant beds, leaving unharvested strips of grain, disking for native foods or planting gullied and eroded areas. The other elective units are trapping for animals, fish pond production and management, erecting nesting boxes and feeders, animal and bird census charts, wildlife food plant survey, photographing wildlife and wildlife homes, listing wildlife regulations, keeping pets at home, and finally, teaching and helping others.

This should indicate that the 4-H program of our State, under its able leadership, is yearly developing boys and girls who will be the sportsmen of tomorrow, and that they in turn are making provisions for their tomorrow.

A breakdown of counties shows that 19% had from 200 to 691 projects; 27% had from 104 to 183 projects; and 54% had from 3 to 94 projects completed. It is interesting to note that in counties where more projects were completed some assist was given by the local wildlife club. Every assistant farm and home agent, who is responsible for their county 4-H program, is to be commended for the good work and continued interest these boys and girls have when you consider how much they have to choose from.

An award is available to each boy and girl of a county who has done the outstanding work in wildlife conservation. They are given a free week at the annual 4-H Conservation Conference held each summer at one of the 4-H camps. The Wildlife Resources Commission has provided instruction at this camp for many years and next summer's camp will be the 21st session.

Another way these club members show interest in wildlife conservation is by participating in their district demonstration day. The September issue of the magazine showed district winners in competition at the finals held during 4-H Club Week.

The sportsmen of the state should extend congratulations to all the 4-H boys and girls and their leaders over the past few years for the good work that is being done in the interest of wildlife conservation, and should make an effort to help these boys and girls wherever and whenever possible as such an assist will be time and effort well spent.

The Commission recognizes the impetus given toward the realization of "more sport for more people—equal opportunity for all".

Pay-off for the county winners is the annual 4-H Wildlife Camp, held last summer at Manteo. Here a group of winners is shown on a tour of Pea Island Refuge, where they saw a wide variety of wildlife.

Photo by Jim Lee

ARE YOU AFFECTED BY THIS?

NEW FARM POND REGULATION

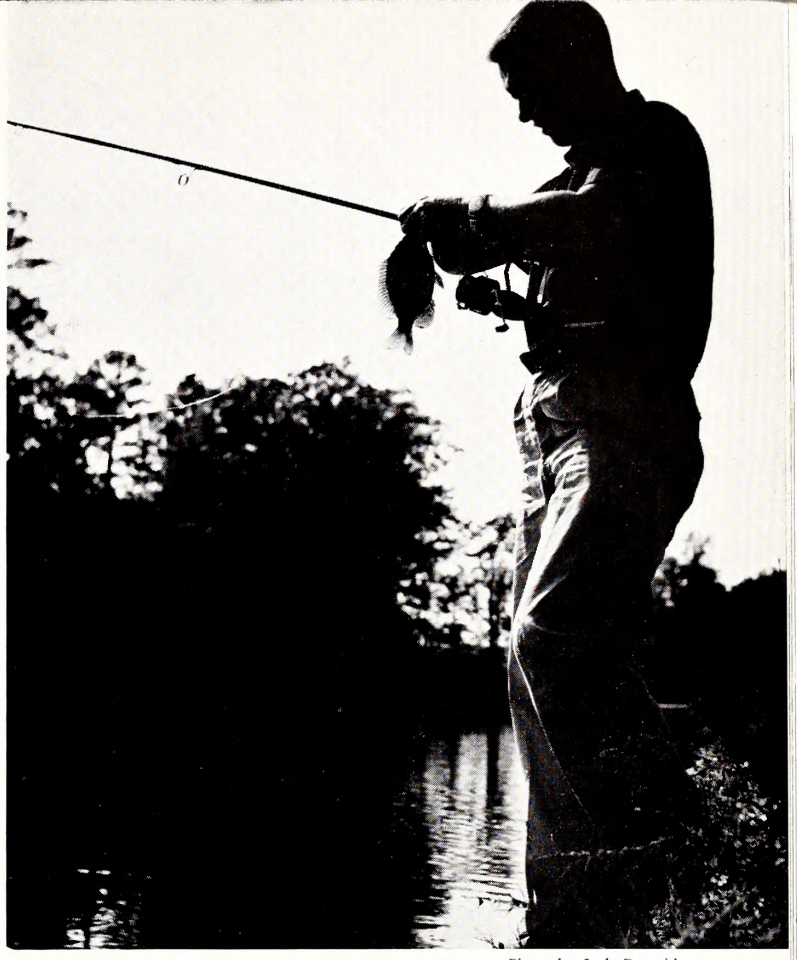


Photo by Jack Dermid

AT a meeting last fall the Wildlife Resources Commission made an important change in the regulations regarding license requirements in private waters. Since this action affects hundreds of farm pond owners and thousands of anglers, the Commission believes that the change should be clearly explained, and the reasons for the change described.

In past years owners of private waters and their *invited* guests have been excepted from fishing license requirements. The Commission simply changed the phrase "invited guests" to "house guests." The simplicity of the change is perhaps the reason that it had gone unnoticed by the press until recently.

The original wording of the regulation was set forth a number of years ago when farm ponds were few and far between, and farm ponds were an insignificant part of the Commission's wildlife conservation program. Since that time farm ponds, many of them coming under the definition of "private waters," have been constructed by the thousands. At the present time the management and protection of these ponds is a major function of the fish management program.

At the same time the demand for farm pond management services and protection grew, the people who stood most to benefit by these services were for the most part exempted from supporting the program through license fees.

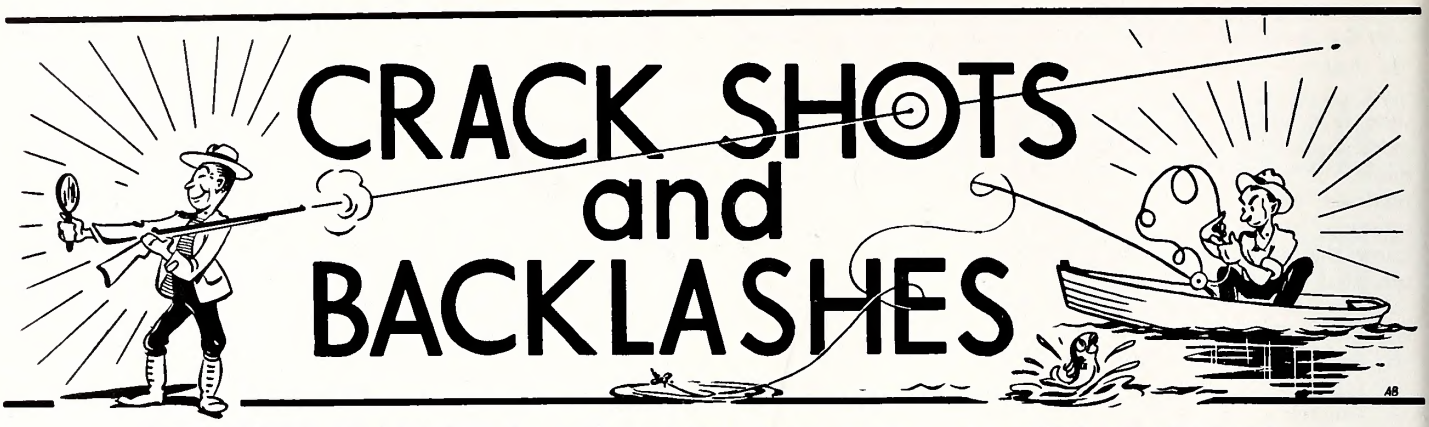
In the past the phrase "invited guest" has been almost impossible to define, but was tacitly construed to mean anyone fishing in a private pond without at least the disapproval of the owner. A "house" guest, as defined by the Commission, is one who is a visitor in the owner's house as his invited guest at the time of the fishing trip involved.

The regulation regarding licenses in private waters now reads: *"Licenses in Private Waters:* The owners of private waters falling within the definition given in Section b. (1) of this regulation, or their house guests, may take fish therefrom in any manner, without regard to season, size, creel limits, or license requirements; provided that no game fish shall be sold, except for propagation purposes as provided by Article 23 of Chapter 113 of the General Statutes of North Carolina."

Further explanation of the effects of this change in the regulation should be made. The only persons affected would be those who were not house guests of the owner of the particular private water concerned, but who would otherwise be required to have a license; i.e., residents of a county other than the one in which the private waters are located, or persons using artificial lures. The owner himself would not need a license, his house guest would not, and persons resident to the county involved, using natural bait, would not. The owner would still have the right to charge a fee for fishing privileges.

There have been, and still are, questions regarding the definition of private water. North Carolina law gives this clear definition: "Private Ponds: Bodies of water arising within or lying wholly upon the lands of a single owner or a single group of joint owners or tenants in common and from which fish cannot escape and into which fish of legal size cannot enter from public waters at any time."

For purposes of further clarification, the Commission uses this definition: "Private Waters: Bodies of water arising within and lying wholly upon the lands of a single owner or a single group of joint owners or tenants in common and from which fish cannot escape and into which fish cannot enter from public waters at any time."



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

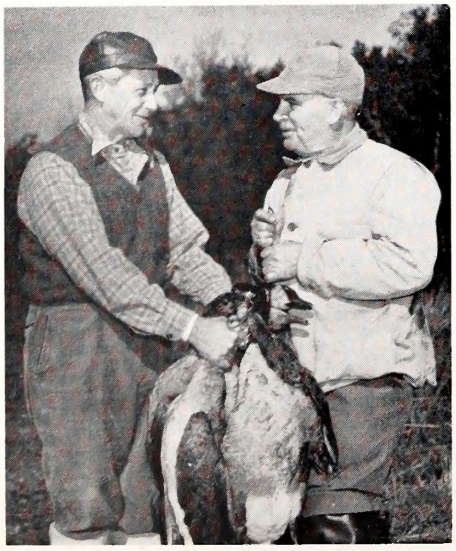
We have made several New Year's resolutions that will be rather unpleasant to break: to do more fishing and more hunting in 1958. Got 'way behind last year.

We hope school teachers will take note of our back cover by Bob Dance. Although only a single species is pictured, the anatomy applies to all birds. The youngsters can learn their mandibles and tarsals.

The boys in Piegler's barber shop want to know why a copperhead stays in the place where he bites a person several days thereafter. Seems a fellow was bitten, taken to the hospital, came back and found the same snake in the same place. Best answer is that snakes, like most other species, establish a certain area to live in, and stay at home so to speak.

Two governors took their limit of geese at Lake Mattamuskeet recently, when Governor Leroy Collins of Florida (left) and Governor Hodges of North Carolina each bagged two geese.

Photo by Pratt Williamson, Jr.



"Dear Sir:

"I want to bring a serious racket to your attention. While hunting on the Sandhills refuge during the last half of October, my party and the Eastern Club Managers have lost a lot of dogs. To my knowledge only one dog has been found. (Thanks to an honest Easterner.)

"Several of the local men have reported baited dog traps. Mr. Grubbs, a local club manager, got one of his dogs from one of these traps. Our hunters urge you to report these traps and dog thieves to your local law and wardens. Mr. Lyle Morgan and his staff are doing a splendid job of managing the area but they can't do everything. We jumped over thirty deer in one section and this land has excellent hunting for all of us if we will cooperate and reduce these dog losses.

"I'm looking forward to some more good hunting if I can recover our dogs.

Sincerely yours,
Roland Lingerfelt, Lincolnton, N. C."

P. S.
"A $10.00 reward for 11½" Beagle called "Shorty", wearing my collar. Color: black, white, and tan."

"Dear Sir:

"I have had opportunity to peruse several magazines on wildlife and conservation, and I believe North Carolina has one of the best. However, the price of 50 cents a year seems a little ridiculous for such a fine product.

"A friend and I exchange magazines—he gets my WILDLIFE IN NORTH CAROLINA, and I get the FLORIDA WILDLIFE—and it works out fine. The only trouble is that, although Florida has an outstanding magazine, patterend along the lines of ours, they charge $2.00 per year for a subscription. Wouln't it help if we upped the ante a little on our own magazine to help defray expenses and have just a little bit more left for conservation?

"I pose the question because I am not much of a sportsman—no hunting at all but I buy my fishing license every year although it's seldom used. This year, I haven't used it at all. But WILDLIFE IN NORTH CAROLINA keeps me hoping I will get the chance to do more fishing next year.

"Now don't go cluttering up your pages with this letter . . . . just leave that space for sportsmen who have something to say.

"Enclosed is check for renewal.

Kindest regards,
Hadley Williamson, Lumberton"

Thanks, Hadley. We don't consider your letter one bit clutterish.

"Dear Sir:

"Congratulations on the editorial, "The Outstretched Hand." As a landowner and employee of the Louisiana Wildlife and Fisheries Commission, I know first hand the many problems of the farmer and hunter. A concerted effort on the part of all magazine editors along the line of this fine editorial is the answer.

Cordially,
Steve Harmon
Editor, Louisiana Conservationists"

"Dear Mr. Patton:

"I want to thank you, and the Director and personnel of the Protection Division for the timely assistance given the State Highway Patrol for the use of personnel, motor vehicles, and aircraft during the recent intensive search for the slayer of two of our patrolmen, Patrolman Brown and Patrolman Reece, whose untimely

death occurred on 5 November, 1957.

"I am enclosing a copy of my letter to Mr. Ben James and Mr. Bob Hazel. It is most gratifying to know that the several state agencies could be so quickly coordinated in an all-out endeavor in such a matter of mutual concern. The services rendered us by your people were outstanding, and it is my desire that you know that your help is very greatly appreciated.

"With kindest personal regards and best wishes, I am

Sincerely,
James R. Smith, Colonel
Commanding"

"Dear Sir:

"I would appreciate it very much if you would advise if the State of North Carolina has any plans available as to how to construct concrete table and benches as shown in your October issue in Pisgah Camp Ground on page thirteen.

"Would appreciate any information you can give me as I would like to build several for personal use.

"Like your WILDLIFE Magazine very much and read it from cover to cover every issue.

Very truly yours,
Fred L. Masten, Roxboro, N. C."

Sorry, we don't have them. Try the U.S. Forest Service or the National Park Service. We'd like a set of plans, too.

Watch the bunny! Bill Bost of Faith sends in his interpretation of WILDLIFE's photographer Jack Dermid in action. A teacher at Faith School and expert wood carver, Bost is continually passing on his skill to youngsters and interesting them in conservation through the carving of wildlife subjects.

"Dear Sir:

"I was interested in reading the short article on the Pisgah Game Preserve in the October issue of Wildlife in North Carolina.

"I would like to call attention to a slight error in this article. In the second paragraph the author states: 'Established as a National Forest in 1916, Pisgah became a game preserve by Presidential order during the thirties.'

"Actually the game preserve was created by presidential proclamation on October 17, 1916. The rules and regulations governing the administration of the preserve were issued on November 9, 1916, to take effect on and after November 15, 1916.

"I enclose herewith a copy of the first edition of these regulations. If you wish to keep it for your library you may do so. The booklet has long been out of print of course.

"The establishment of the game preserve was a new venture for the U. S. Forest Service in its administration of the land purchased under the Weeks Act of 1911.

"I am inclined to think that there may have been another presidential order perhaps which may have relinquished fish and game administration to the State of North Carolina. If this is true such an order could have been issued in the thirties. The author, if he had this in mind, was correct in his statement although not too specific. With best regards.

Sincerely yours,
Verne Rhoades, Asheville"

Thanks. We stand corrected.

"Dear Sir:

"I would like to know if the blue goose is a protected species. We have an argument started about it.

"Thank you.

Yours very truly,
Will C. English, Cramerton, N. C."

All migratory waterfowl are protected. Blue geese, common to the Mississippi and Central flyways, are protected. There is an open season on them, and they are very popular with midwestern hunters.

Commission Chairman O. L. Woodhouse (right) of Grandy makes cash awards to winners of WILDLIFE IN NORTH CAROLINA's recent subscription contest. Shown receiving his check is Patrolman Eugene Jones of Siler City who took top honors with 1,462 subscriptions. Runners-up were (right to left) Protectors J. D. McLean of Gastonia, 1,146; Jimmie J. Wheless of Lexington, 1,114; and George Barr of King, 525. All Commission personnel worked hard to make the subscription drive most successful. More than 16,000 new and renewal subscriptions were sold to boost WILDLIFE'S circulation to nearly 70,000.

SPUTNIKS AND CONSERVATION

We do seem to be up in the air these days, but, as to a seasick sailor, *terra firma* is still a wonderful place. Though for centuries

A cottontail rabbit, silhouetted against the white snow, is an easy target. Although it is illegal to hunt rabbits with a gun when the ground is completely covered with snow, you may hunt any game under any conditions when you are using a camera.

lifting himself through the sky as birds have done, he is still ever aware that the storehouse of the earth has made all this possbile.

We are standing at the threshold of a new way in life, not of life. How many people believed at the time that the feats of Columbus, Magellan, Wright, or Edison would accomplish anything worthwhile? Yet they set a pattern which pretty much controls our existence now. The past eighty years have seen the greatest physical progress man has experienced. But recall that this took centuries of preparation through man's indomitable will to advance. These four score years have given us the telephone, electric light, radio, automobile, airplane, television and electronics, to name only a few. And my, how that has reduced time and space.

Conservation of natural resources must now assume a greater role in the attitude and activity of us all. Today more people are aware of the meaning and application of conservation practices and principles, but we must hold on to these people and gain new supporters. As wind blowing over a wheat field will bend the stalks in apparent waves of rhythm, so we are guilty of waving our sentiments in shifting breezes. We can not afford to sacrifice all we have gained. Except for stalwart enthusiasts, many people are apt to subjugate the problems of conservation to those who want to "keep up with the Jones's."

Much has been done to perpetuate and preserve our natural resources and yet much more must be done. We cannot now lessen our efforts or slack up on our grip with this problem or even put it aside for future consideration, because the strength of America is vested in her remaining natural resources.

—Bill Hamnett

Biologist Don Hankla (right) and all Commission employees are agents for WILDLIFE IN NORTH CAROLINA and will gladly take subscriptions.

RESOLUTION: FEDERAL SPORT FISH PROGRAM

WHEREAS, sport fishing is the nation's most important form of outdoor recreational activity, providing a primary means of healthful relaxation for more than 25,000,000 United States citizens, and

WHEREAS, economic surveys have shown that sport fishing supports a two billion dollar annual industry in this country, and

WHEREAS, the Sport Fishing Institute has consistently recommended that the federal government meet its responsibility in helping the states solve their pressing sport fishing problems, and

WHEREAS, Congress has clearly stated that an adequate sport fishery program would be developed within the U. S. Fish and Wildlife Service in the passage of the Fish and Wildlife Service Reorganization Act of 1956,

THEREFORE, BE IT RESOLVED, that the Board of Directors of the Sport Fishing Institute commends Assistant Secretary of Interior Ross L. Leffler for his efforts in creating a Division of Sport Fisheries within the U. S. Fish and Wildlife Service, and

This summer-time picture may seem a little out of season on January, but we hope that Ann Hammar's smiling face will serve as a reminder that your 1957 fishing license should be replaced with the 1958 model.

BE IT FURTHER RESOLVED that the Sport Fishing Institute urges the Congress and the Administration to continue to develop an adequately budgeted sport fish and wildlife conservation program as rapidly as possible, and

BE IT FURTHER RESOLVED that the Sport Fishing Institute will do everything possible to further the development of a substantial, well-balanced federal sport fishery program.

"Mr. John D. Savage, Wildlife Protector
Oxford, North Carolina
"Dear Mr. Savage:

"On September 1, 1957, you apprehended Mr. Rupert Lloyd for hunting out of season. This was done after Mr. Lloyd tried to escape by shooting you twice with a double-barreled 12-gauge shotgun and number six shot.

"We have discussed this incident, and join in commending you for exercising a very high degree of calmness, level-headedness, and good judgment under unusually difficult circumstances involving extreme danger to your own life and limb. We also commend you for having the courage to press to completion the apprehension of a game law violator, notwithstanding the fact that he appeared to have the intent to inflict upon you critical and permanent bodily injury. You are also to be commended for refraining from using your own weapon to shoot and seriously injure or kill Mr. Lloyd in self-defense.

"Your action in this case typifies the very highest tradition of the Wildlife Resources Commission in its undertaking to administer justice to all, regardless of the circumstances in which it might find itself.

"We all join in wishing you a speedy recovery and continued success in your wildlife conservation work.

Cordially and sincerely,
Clyde P. Patton,
Executive Director
Ben H. James
Chief, Wildlife Protection"

"Mr. Bob D. Perry, Wildlife Protector
Wake Forest, North Carolina
"Dear Mr. Perry:

"Please find attached a copy of a letter which we have just written to Mr. John D. Savage, regarding the incident which occurred on September 1 when you and Mr. Savage apprehended Mr. Rupert Lloyd for a game law violation.

"We wish to take this opportunity to commend you for exercising unusually fine judgment in the way you handled the situation during the time that you were assisting Mr. Savage in dealing with Mr. Lloyd. You are to be commended for refraining from using any more force than was necessary in subduing Mr. Lloyd and in making the arrest. It would appear to us that you were completely justified in the action that you took in this case. If you had not handled it as you did, it might have resulted in a much more serious situation.

"We join the Commission and your fellow workers in wishing you continued success in the splendid wildlife conservation work that you are doing.

Cordially and sincerely,
Clyde P. Patton,
Executive Director"

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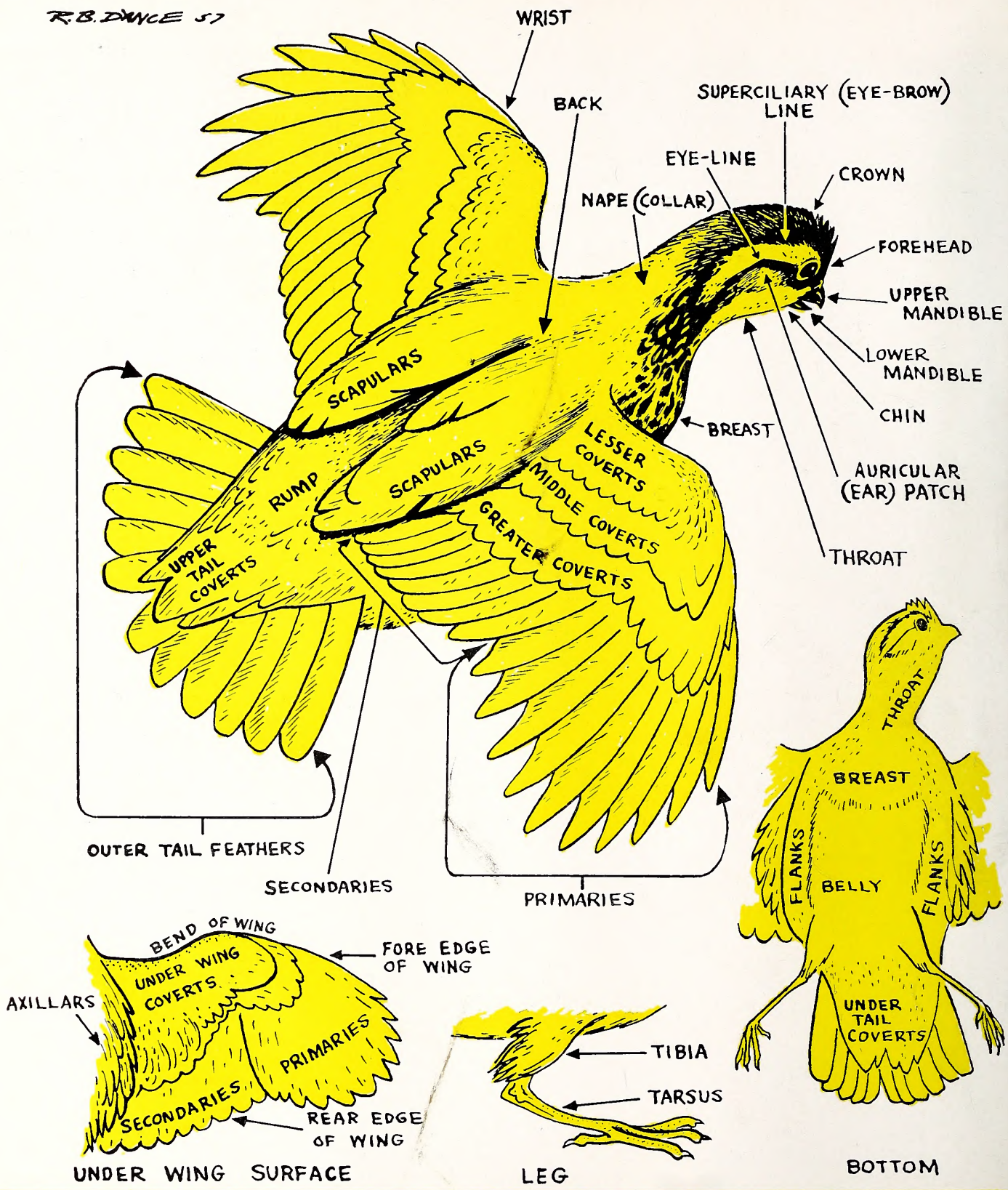

TOPOGRAPHY OF A BIRD

SHOWING BOB-WHITE QUAIL

PRINTED BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

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Wildlife

FEBRUARY-1958

TEN CENTS

in north carolina

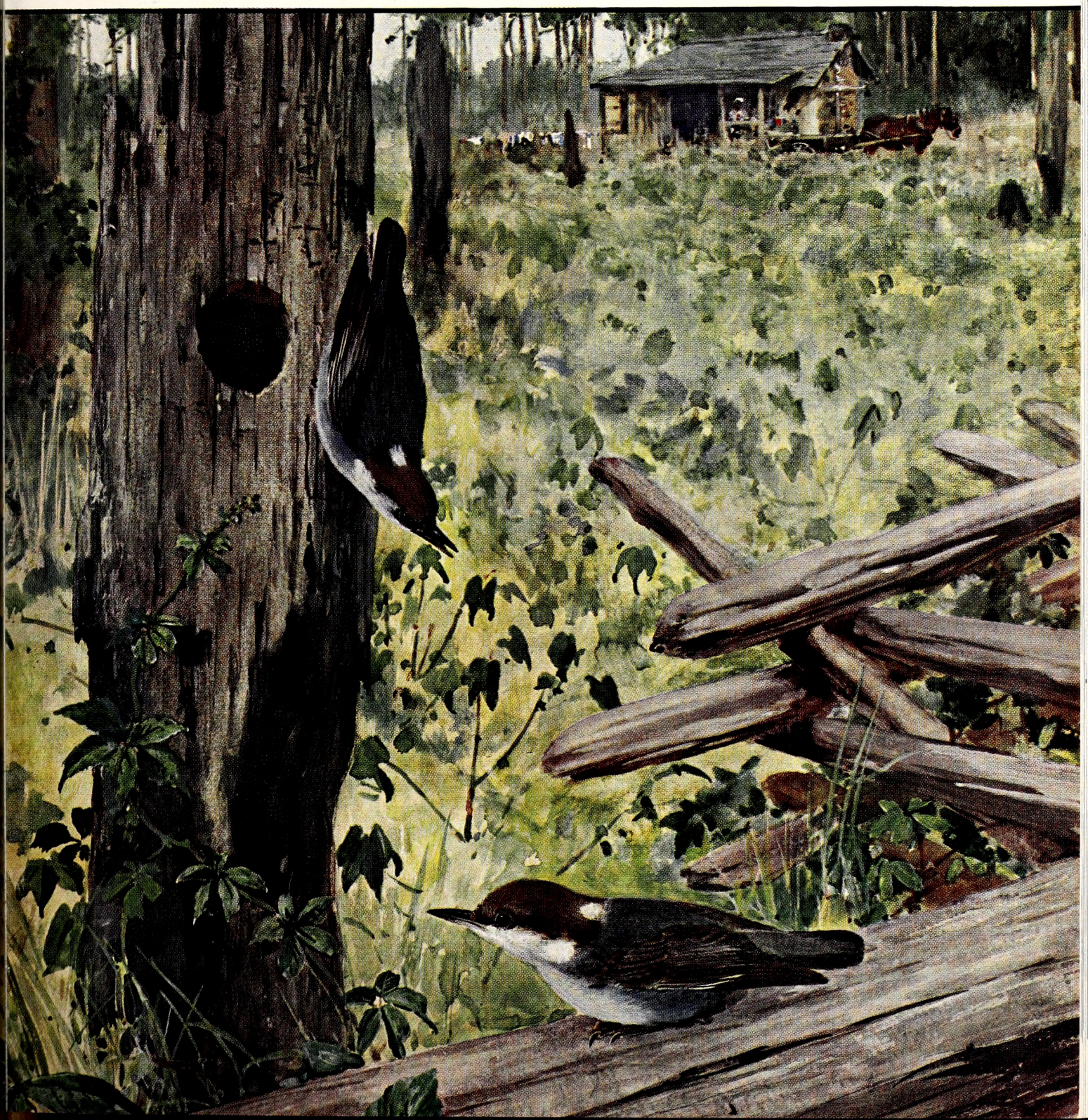

Photo by Jack Dern

End Of The Season

The hunting season draws to a close in February, and this silhouette of a successful hunter and his dog is symbolic of the good days the sportsmen of North Carolina have shared. The picture speaks of a bright future, too, even better sport in future seasons. Biologists, wildlife protectors, and the entire Commission are working around the year to produce better hunting and fishing through a coordinated five point program: Regulation, Enforcement, Education, Management, and Research.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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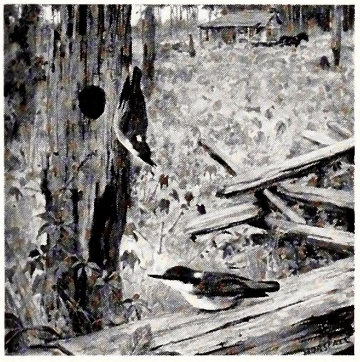
COVER



The history of our February cover is almost as interesting as the birds shown. The pair of brown-headed nuthatches beside a cotton field are common to eastern North Carolina. The painting was done by Robert Bruce Horsfall for the first edition of "Birds of North Carolina". Commissioned by the State Audubon Society of North Carolina, the painting was done in 1912. Now the property of the State Museum, it may be seen along with other original bird paintings at the Museum. See page 6 of this issue for important news about the reprinting of this important book of North Carolina birds.

Wildlife in North Carolina recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

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Ear-Muff ANGLING

By Duane Raver, Jr.
Federal Aid Coordinator, Fish Division

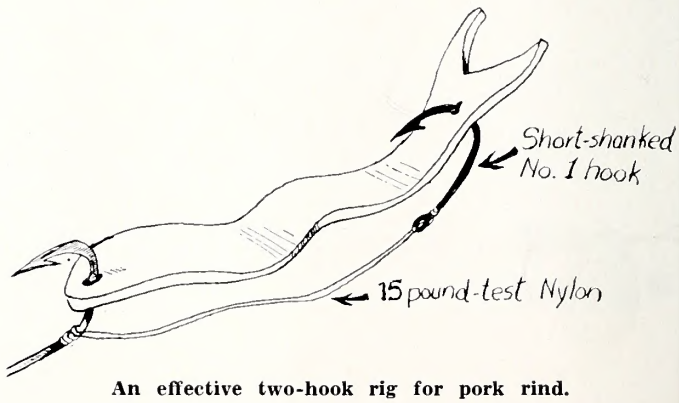
Cold weather fishing calls for ear-muffs and gloves, but you may come home with a prize string of fish.

THERE are some fishermen who simply don't give up. Among this group of undaunted souls are those who gladly (?) don gloves and long handled underwear, plus wool shirts and parkas and head for winter fishing. Duck hunters shivering in a cold, wet wind swear that the fishermen thus pursuing their sport haven't all their marbles. It does get rough among the ear-muff angling set, but there are mid-winter days that make pleasant times to be out on the lake or pond. Is winter fishing worth it? That is your decision. If it will be of any help in making up your mind, here are some cold weather fishing ideas—some maybe you will agree with, some maybe not.

Many fish, it seems, go into a state of semi-hibernation when the water temperature sinks below 50° or so. Now this in itself makes cold weather fishing somewhat tougher than at most other times of the year. One step toward the solution of this problem is to go after the fish considered most active during the winter. High on this list are the pickerel, the crappie and the yellow perch. Walleyes, too, hit pretty well right through the frigid times. Some bass are picked up—particularly big ones—and bluegills may hit well at times from November to March; but both are usually more difficult to put in the boat than the four previously mentioned. Fishing methods for all of them are quite different after frost. First then, pick your quarry—one that will at least cooperate to some extent.

This may mean a careful selection of fishing waters rather than simply hitting the same old places that produced in June. Generally, fish seek the water temperature at which they feel the most comfortable; the nearer to 70° or 72° a bass can have it for example, the better he likes it. Now in winter this means going into deep water to warm up. Probably he will help the cold situation on the surface only a few degrees but down he goes anyway. Warm days? If the surface warms up, chances are he'll be up. If there are springs in the lake or pond, these areas usually are several degrees warmer in the winter than the surrounding water and often produce good catches of most all species. In a great many cases, it's the deep water that pays off, and if a rule can be established for the winter season fishing it's "fish deep".

Let's take individual fish and pin down special techniques. The pickerel, for example, is a year 'round customer that feeds at least to some extent right through the off season. He slows down, though, and a slow retrieve will produce more strikes than the customary quick, darting, action of summer. Hit the spots that paid off last summer first; those submerged weed beds, hidden logs or brush, or the shallow bars. Flip out a small, wobbling plug that runs about 3 or 4 feet deep. Just barely move it and still maintain some action. Set the hook only when you feel the strike, not when you see the flash or a white belly or an open mouth. If this method leaves them cold, try a bass-size pork rind strip behind a small nickel spinner. You may be plagued with "short strikes", and a rig similar to that shown in figure 1. may help (it kills some of the pork rind action, though). A lure that is just about as effective is the bucktail-spinner combination. The hook can be fairly large (say 2/0) and the galvanized, salt water type works fine. Tie on some white bucktail an inch or so longer than the hook; follow this with a pinch of bright yellow and top it off with a little dark brown hair. Some like to tie an "upside down" bucktail like the one shown in figure 2. Team this with one of the free-running spinners of which there are several on today's market—brass or nickel, it doesn't make much difference. You may be pleasantly surprised at the beautiful action you can impart to this bait by rod-tip manipulation. Remember, keep that hook sharp!

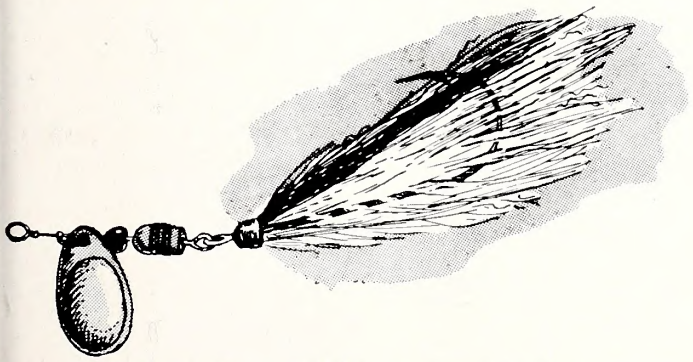


An effective two-hook rig for pork rind.

Although wobbling spoons are summer's top-notch pickerel slayers, they rate barely a mention in winter's arsenal. Their greatest virtue here is the depth at which they run. Try them, but don't rely entirely on them.

For winter angling, let's face it, it's pretty hard to beat live bait. Particularly is this true for pickerel and crappies. A fairly large (two-inch) lively minnow hooked lightly on a number 1 or 1/0 hook will perk up pickerel (and bass too) like nothing else can do. The pickerel is noted for the set of needle-sharp choppers he carries around, and a 15-pound test nylon leader may discourage chewed-off baits. At times a light wire leader is better where real big fish may be involved.

If you've ever been into a school of big winter crappies, you know the action possible with the speckled fellows. No doubt about it here, minnows about two inches long hooked through the back or lips are just about tops. The less weight on the line, the better; a float is handy but not essential. The secret of course, is locating the fish. The place to start is around any submerged brush—preferably in water deeper than 6 feet. You may drift around all day, trying various depths and still not hit them; but once you do, you should be set for half-a-dozen fish or more. No minnows? Select a lure that comes closest. A white bucktail jig between two and three inches long with a number 4 hook, fills the bill on occasion. Skip it slowly along the bottom. You'll set the hook into many a stump in the process of hooking crappies, so a handful of jigs is in order. A spinner and bucktail may be effective on the fly-rod when fished slowly. Toward spring, take off the spinner and fish the bucktail in a darting manner around fallen trees for spawning fish.



"Upside-down" bucktail-spinner combination.

Seldom a winter goes by without producing a really big bass in the state—and this in the dead of cold weather. Usually the big fish are taken on large minnows fished near the bottom. So they can be caught in cold weather. The big reservoirs often produce good catches for those determined enough to take the weather. White, yellow and brown jigs account for nice bass off the points in these lakes. Fish slowly near the bottom, around mid-day for some surprises. Stick to bait and jigs unless several days of balmy weather warm up the surface water. Then look out! The bass may hit the surface, mouths open. The shallow coves may contain concentrations of bass since they tend to school in the winter. All fish, bass included, prefer a slow moving bait during the winter. And they won't go far out of their way to get it. This means covering the water thoroughly before giving up.

To the fisherman: Since the Lord created the Earth with one fifth land and four fifths water; obviously He intended that man spend four fifths of his time fishing.

To the fisherman's wife: Have your husband spade the garden early so that the fishing worms won't be too big a temptation.

I recall one trip when we admired our catch of walleyes as they lay on a snow bank. Canada? No, right here in old Tarheelia. The point is, the weather was cold, but the walleyes cooperated nicely. The lure? Brown or orange jigs fished deep and slowly. The water wasn't over 50° and may have been closer to 40°. The fish were icy cold but scrapped right up to the net. True we were fishing in a concentration of fish, but walleyes school in large numbers and once located can be taken repeatedly. Many were taken from these same waters on bait, too; but artificials will fool winter walleyes. At times during the colder months walleyes show no preference for deep water and can be taken from two feet on down, apparently with little congregating at any particular level. This means trolling slowly with a minnow behind a spinner, or using a wobbling plug. Walleyes may just barely nip at the bait, so hooking them can be a problem. Switch to a smaller lure if this happens.

Bluegills on flies during the winter months is almost a novelty. It's been done, but generally not worth the time. Dig out a handful of earthworms you put in containers in the basement last fall and rig up a light spinning rod. Clamp on one or two small split shot, thread on a couple of fat worms (a number 8 hook will do) and pitch it 'way out into deep water. A float merely hinders the operation and since you will be keeping a tight line by moving the bait ever so slowly, you will feel the strike. You may be rewarded with some of the nicest bluegills of the year. The cold water doesn't seem to take much of the fight out of them, and some fine sport should be in store for you.

We haven't mentioned yellow perch, the winter run of rock fish up some freshwater creeks, the fine speckled trout fishing in the brackish rivers, and other ear-muff fishing; but you get the idea. Winter fishing is rough but can be red hot on the coldest day.

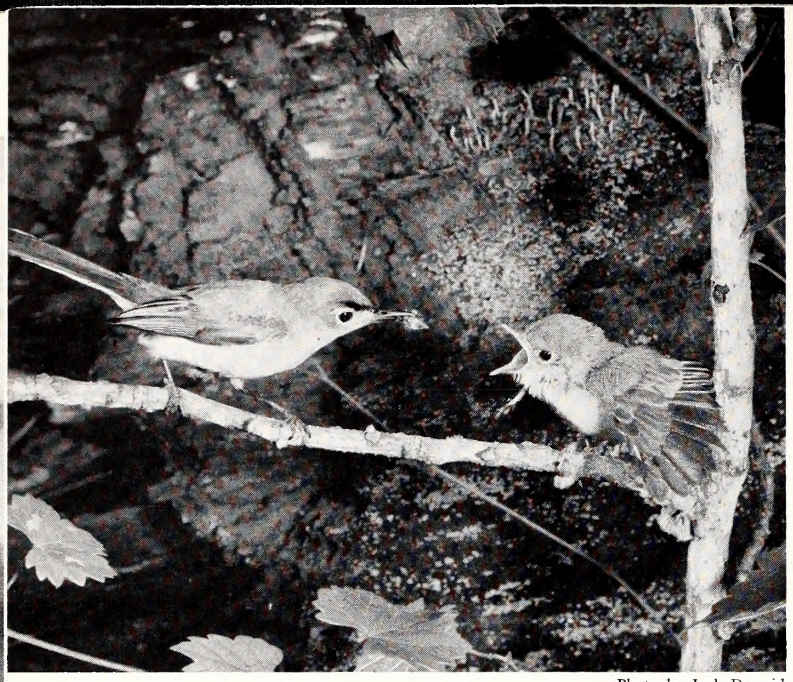


Photo by Jack Dermid

Blue-gray gnatcatcher feeding young.

Birds of North Carolina

By W. L. Hamnett
Wildlife Education Representative

"THE object of this publication is to place in the hands of interested persons a book of ready reference which will be of assistance to them in acquiring further information regarding birds of North Carolina; and also to preserve in permanent form the hitherto widely scattered data relative to the distribution and occurrence of the many rare species that have been found to occur within the borders of the State. . . . When we consider the great economic importance of wild birds as destroyers of many of those insects which are injurious to growing crops, stored grain, fruit trees and forests, and also the value of the esthetic effect of their presence about the home, we marvel that any citizen should permit the wanton killing of useful species on his premises".

Thus said, Mr. Joseph Hyde Pratt, State Geologist, in the preface of the first state bird book submitted to the late Honorable Locke Craig, Governor of North Carolina, on June 1, 1913. Before the book was ready for binding, a fire destroyed the whole edition as well as the printer's plant. It was not until 1919 that the book was published and distributed by the North Carolina Geological and Economic Survey, the fore-runner of the present Department of Conservation and Development.

Birds of North Carolina was written by three outstanding ornithologists and naturalists of our state, and their original work went into one of the first state bird books published in this country. The foresight of the late Mr. T. Gilbert Pearson, Mr. C. S. Brimley, and Mr. H. H. Brimley is embodied in the new edition soon to be released.

This book is as valuable today as when it was first published but new methods in bird study, nomenclature, and the new records have made it important that a second revised edition be prepared.

Mr. David L. Wray and Mr. Harry T. Davis, formerly associated with the 1942 authors, have undertaken this revision which presents new facts learned about the habits, abundance, distribution in season and range since 1942.

Twelve new birds have been added to the list of birds to be seen in North Carolina bringing that total up to 408.

A new chapter and map explain the four faunal zones and their influence upon the breeding range of our birds.

Ten new page plates, four in color, have been added to make a total of 47 page plates, 24 in color. All the more difficult birds to identify are now illustrated. The revised book will now have 455 pages.

By effecting all the possible economies this volume will sell for a pre-publication price of $4.00, and a regular price of $5.00. Funds are handled by the MUSEUM EXTENSION FUND, Box 2281, Raleigh, N. C. This book will be available in April, 1958.

The cover of this magazine is one of the plates in the book, and the contents of the book is illustrated by an excerpt from the section on this bird.

BROWN-HEADED NUTHATCH Sitta pusilla pusilla Latham.

Description. A sky-blue above; whitish below; top of head brown, a white spot on nape. Length 3.85-4.40; wing 2.60; spread 7.75-8.30; tail 1.25.

Range. Resident from southern Missouri and Delaware to the Gulf Coast.

Range in North Carolina. Resident in the central and eastern parts of the State, but not recorded west of Burke County.

In pinewoods through the State, east of the mountains, this is the most common nuthatch. It is much given to traveling in small family bands. In spring a pair will select some suitable fence post, tall stump, or dead limb, of the proper degree of softness from decay, and begin industriously to excavate a hole in which to nest. Several holes may be commenced and abandoned before one entirely to their taste is found. The final choice is dug to a depth of about six inches below the entrance hole and is lined with strips of bark, chips, leaves, cotton, and the wings of pine seeds. The peculiar pungent odor of the bird is imparted to the nest.

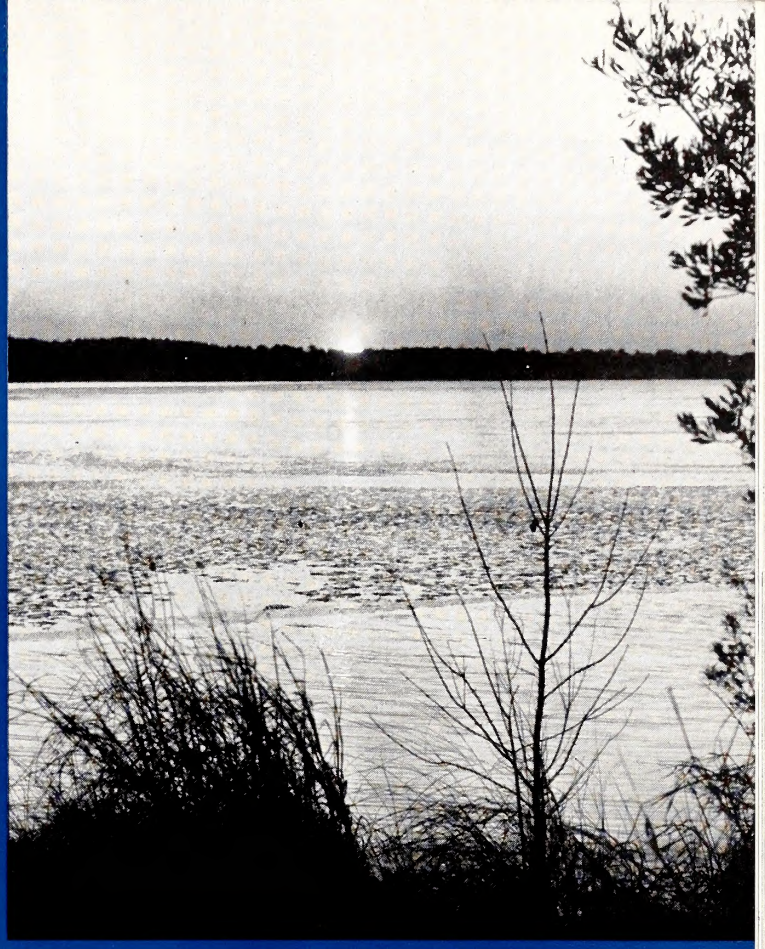
The eggs are four to six in number usually laid about the end of March or the beginning of April, though belated nests have been found as late as May 15.

WINTER'S GRIP ON MATTAMUSKEET

ICE

Photo Short by Jim Lee

Winter's grip took a fast hold on Lake Mattamuskeet during early January, when temperatures took a dive below freezing for several days. The lake, only a few feet deep, is fifteen miles long and five miles across. Hyde County winds sweeping across the lake, freezing at night and thawing during the day, piled ice in drifts as high as a man's head in places. Waterfowl on the refuge were content to swim in the patches of open water or walk around on the ice during the day, before taking to the fields to feed after legal shooting hours ended.



A sun that failed to melt the ice on Lake Mattamuskeet settles behind the trees as another cold night begins.

FAR LEFT: Broken pieces of inch-thick ice were driven into overlapping ridges by the constant wind. LEFT: A guide's boat, anchored for the night beside the causeway crossing the lake, was frozen solid the following morning. The hunters who drew this blind used a substitute blind.

LEFT: Grasses and small bushes along the causeway were covered with frozen spray, forming weird shapes. RIGHT: Despite freezing weather, hardy goose hunters stood in lake blinds expectantly awaiting birds.

LABELS ARE LIKE ARROWS POINTING AT WHAT YOU HAVE TO SAY IN THE

SCHOOL MUSEUM

Part V

By Jim Lee

"WHAT it it?" That is the first question that comes to your mind when you see something that you don't recognize. And, if time and circumstances permit, you like to have your question answered. Every museum exhibit is an attempt to make you wonder, and then provide the answer. An unanswered question in a museum is just like an advertisement that fails to make you want to possess the advertised product—something just missed the point.

Good labels for museum collections start when the material is picked up, caught, or is brought in. Does it sound like a chore to have to jot down immediately on a label the name of the person who found the object, when it was found, and where? It is a bit of trouble, but it can make the difference between a valuable specimen and a bothersome mystery later on.

Who collected it? If yours is a personal collection, made up entirely of things that you have found, then the question never comes up as long as the specimen is in your possession. What happens, though, if later the material goes to another museum? If the object is rare, then other students of natural history may want to consult you to find out the exact circumstances under which it was found in order to unravel some problem. At any rate, you want to take credit for your accomplishment in finding the object.

When was it found? The exact date that moths emerge from their cocoons will vary from year to year, depending on many factors, but to understand the life history of each moth, average dates are very useful. The more individual observations that go into making up an average, the more nearly accurate the average will be. Your observations, recorded on the label, can help improve on the knowledge that we have about all the animals that share our world.

Where was it found? Aside from the pleasure that comes from having collections taken from all over the country, there can be other very good reasons for recording the location where your exhibit was found. When the value of uranium became generally known after World War II, many rock collectors tested their collections with Geiger counters. For some, who had kept complete records on the source of each rock in their possession, the counter revealed deposits that they were able to turn to commercial advantages. Far more often, the collector sat with head in hands, wondering where in the world he had picked up that rock which made his counter click so wildly. Your record of a plant or animal found in a particular place may become just another dot on the map, but then again it may extend the known range by hundreds of miles. It's far better to spend a few extra minutes writing adequate labels than it is to say "I just wish that I could remember."

What about identification? If you don't know what you have found, leave a blank space on the label for inserting the name when you are sure that you have correct identification. In a later article, a list of manuals, reference books, and other sources of information will be given to help you correctly identify what you find.

When you have correctly identified the material, attach a permanent label. Biological supply houses carry a complete line of labels for every type of exhibit specimen, and time as well as money will probably be saved if you invest in labels made for the purpose. Printed labels with spaces for common and scientific names, locality, collector's name, the date collected, and a reference number can be had for 20¢ per hundred from one biological supply house. These are gummed. Other labels are available on tags, made for tying to such specimens as study skins. Still others are printed on waterproof parchment and may be placed inside jars containing snakes pickled in alcohol or formaldehyde. For many purposes, you can use tags and labels purchased at stationers' or office supply stores.

Insects are commonly given special treatment in labeling. Most displays and collections of insects are made up of specimens pinned to soft boards. If the insect is very small, it is cemented to a triangular piece of cardboard and the pin is then inserted through the cardboard. Larger insects are

pinned directly. In both instances, the insect is elevated an inch or so above the board. Below the insect a small label, separated from the insect by a quarter of an inch or more, is located on the pin. This label carries the name of the place where the insect was found, the date found, and the name of the collector. Below this goes a larger label, also on the pin, carrying the scientific name and the common name.

Scientific, or Latin names, should be indicated on the label. This is not to impress anyone with the extent of your knowledge, but rather to facilitate indentification. Scientific names consist of two words, the genus and the species. One genus of fleas is *Ctenocephalides*. The flea commonly found on dogs is *Ctenocephalides canis,* the cat flea is *C. felis*. Every reference contains an index using scientific names, and it is far easier to use these names in seeking more information. Common names vary from place to place, and in some instances, such as obscure insects, there is no common name. Where there is an accepted common name, show that on your label too, but when possible, include the scientific name on all permanent labels.

Rocks, minerals, and Indian artifacts also require special treatment. When the specimens are collected in the field, group all the ones from a particular location together and fold them up in a paper sack or newspaper along with a note giving the exact location. When you have sorted them at home and have selected the ones to be kept permanently, apply a dab of white paint or model airplane dope on an inconspicuous place. India ink that is waterproof can then be used to letter a code number corresponding to a record in your file. If you keep your rocks and minerals in compartmented boxes, put the code number on the label in the bottom of each compartment. When the specimens are handled, it will be easier to return them to their proper place.

Seashells can be numbered, directly with India ink or with dabs of white paint. Or you can write the information on slips of paper and stuff them inside the shells. The numbering method is far better, since slips of paper are easily lost.

Here is a sample label for general use.

THE SCHOOL MUSEUM

COMMON NAME: _____

SCIENTIFIC NAME: _____

LOCALITY: _____

COLLECTOR: _____ DATE: _____

What about labels for display? We have been discussing permanent labels to be kept with materials when they are stored, but what happens when the objects are used on exhibit? Our permanent labels are too small to be read from a distance, and are usually put in an inconspicuous place. Labels to be read by the visiting public, or a classroom of children, should be large, legible, and informative. The size of the display label, of course, depends on the size of the exhibit, its design, and the space available. Many materials and techniques are used for display labeling, but all attempt to convey to the public the significance of the exhibit.

The simplest label for display is the typewritten note. A neatly typed statement about the exhibit can answer many questions. A special typewriter is made for museum use, employing type about a quarter of an inch high. Someone in the community may have such a typewriter, and might let you use it. Another method of producing neat labels is the mechanical lettering set. Cut-out stencils which can be followed with pencil or pen are often used, but these have the look of a stencil and little can be done about it. Far more satisfactory, but also considerably more expensive, the mechanical set uses a pen filled with India ink and produces a label with professional neatness. Hand lettering with lettering pens allows room for originality, but is also tedious and requires some skill.

The key to any display label is the name of the object exhibited. This may be set apart from the rest of the label by the use of different lettering styles, or by using such aids as cut-out cardboard or plaster letters. Check with the display man at one of the local department stores for sources of these letters.

You can add dimension to your display labels. By using plaster or cardboard letters, the shadows that they cast will add interest and emphasis to what you say. If you are working with flat labels, place them on pieces of cardboard, pressed board, or plywood to make them stand out from the background. If the exhibit is at eye level, stand the labels on supports to add depth.

What does the display label need to say? Answer that question by asking in turn what is the most important thing to be told by the material. If it is an arrowhead, tell what it was used for, when it was made, and how it was made. The reader wants to know what the exhibit means to him. If a beetle is important as an agricultural pest, mention the damage that it does, and how it is controlled. Tell how large a snake or a fish will grow, what it eats, and what eats it. Mention, and perhaps include a map to illustrate, where a migratory bird nests and where it spends the winter. Each label should tell the reader something about the object, briefly and clearly, to help him appreciate more what the exhibit has to say.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Fire Ant Study To Be Made

Taking cognizance of the importance of and danger from the fire ant control program now under way in southeastern states by the U. S. Department of Agriculture, The U. S. Fish and Wildlife Service has appointed Mr. Walter Rosene, Gadsder, Alabama, to initiate field research on the effects of fire ant control. Rosene serves with the research branch of the Service's Atlanta offices.

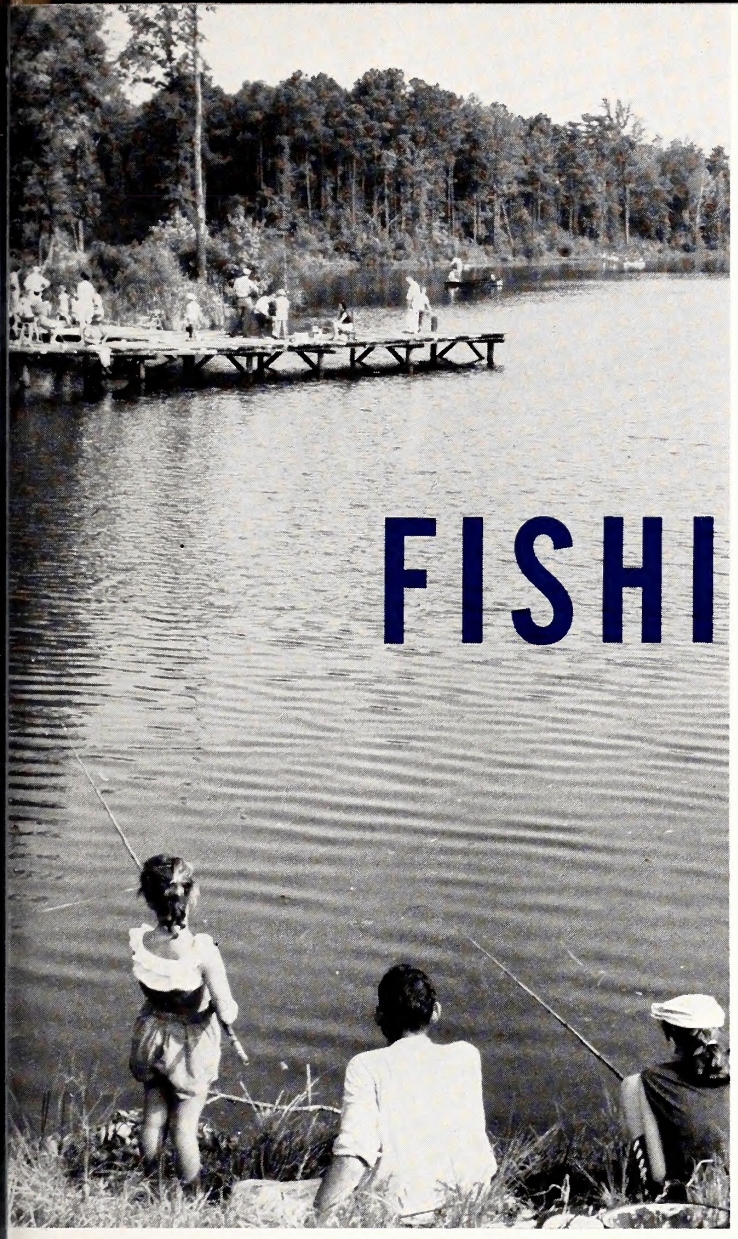
In a letter to Clyde P. Patton, Executive Director of the Wildlife Resources Commission, Walter Gresh, Regional Director of the Service, pointed out that the Service is concerned with the effects of pesticides on such species as bobwhite quail, mourning dove, waterfowl and woodcock, and that the problem is important enough to institute a major field project. While observations indicate only very limited and localized incidence in North Carolina, field men have been alerted to detect further spread so as to provide for coordination of control in such a manner as to preclude extensive damage to game animals. Many conservationists consider that wholesale spreading of lethal insecticides from planes will eliminate most forms of fish and game in many areas.

February 10 Marks Close of Major Hunting Seasons

One of the most successful hunting seasons in the past several years comes to a halt on February 10 when the season on rabbits, quail and wild turkeys closes. Shooting on commercial shooting preserves which offer ducks, pheasants, quail, chuckar and coturnix quail will continue through March 31. Foxes may be hunted in counties where local law provides a year around season, and such species as crows and woodchucks may be taken throughout the year.

National Wildlife Week Schedules for March

With National Wildlife Week schedules for March 16-22, wildlife club presidents, civic club presidents, civic groups, schools and other organizations should begin making plans for observance programs. For information, program suggestions and other materials, write to Rod Amundson, State Chairman, Box 2919, Raleigh. Program materials are provided by the National Wildlife Federation with headquarters in Washington, D. C.



Edgecombe County Wildlife Club's

FISHING RODEO

By Jack Dermid

Photos by the Author

February is not the best month for fishing, but it is a good time for wildlife clubs to plan spring and summer activities.

WHEN the horn sounded at 2:30 p.m. last August 14, the Edgecombe County Wildlife Club's annual kid's fishing rodeo began with many a whoop and splash.

At the starting signal, a dozen boats loaded with boys and girls moved away from shore and headed for choice spots where big fish were supposed to be; other youngsters crowded to the end of the big T-shaped pier where, at times, corks bobbed only inches apart, while some eased their poles through bankside bushes to dip worms into likely holes. There was a feeling of excitement in the air. The sound of happy voices echoed up and down the shore, and soon the yell marking the first catch rose above the chatter.

More than 75 youngsters from Tarboro and surrounding communities had converged upon the wildlife club's 13-acre pond near Old Sparta for an afternoon of fishing fun and frolic, and despite 95-degree temperatures, 30 club members were on hand to untangle fishing lines, paddle boats, and share in the fun.

Competition to catch the most fish and the largest fish was keen among the young Izaak Waltons. Each youngster wanted to win, not only for the pleasure of catching fish and the esteem that comes to a winner, but for one of the choice prizes to be awarded to the champions. The rodeo was open to any boy or girl between the ages of 5 and 14. As a safety measure, club rules required that the children had to be accompanied by parents or guardians, who, of course, were ineligible to fish. But some of the keenest competition was among the adults as they gave their charges moral support, coaxed them to fish with greater effort, and speeded up matters by baiting hooks and untangling lines.

It was a pleasure to be a spectator where everybody was having so much fun, and as I watched and took pictures, I realized that here was a wildlife club in action, a club doing something worthwhile for its community. The rodeo was bringing together people in all walks of life to share the joys of outdoor recreation. It was a day of discovery for the boy on his first fishing trip, an introduction to the pleasures of wetting a line and doing battle with a fish. Happy memories were awakened in a mother who had lost contact with the out-of-doors since her own childhood. A father, who had previously

↑ **Catalpa worm for bait.**

neglected to take his children fishing or was too busy to go himself, suddenly realized the values he had been missing; a son or daughter felt closer to Dad than ever before. Here was conservation in action, too, for surely everyone would leave with a better appreciation for clean water and wildlife.

I wanted to know more about Edgecombe County Wildlife Club and its activities and wandered over to the dam where Mabrey Bass, editor of Tarboro's *Daily Southerner,* had his two daughters in tow to ask a few questions.

The Edgecombe County Wildlife Club was a thriving organization during the early postwar years and played an active role in the North Carolina Wildlife Federation's political battle to establish the Wildlife Resources Commission, a separate state agency responsible for the management and protection of our freshwater fish and game resources and responsible for the expenditure of the license dollar. With this milestone in conservation established and with apparently no more immediate causes to champion, interest in the club began to lag.

Farsighted leaders in the club began to realize that the fight for the conservation of our natural resources was a never ending one as long as self-interest groups persisted and as long as there was a need for conservation education and an appreciative public. They did not want to see the accomplishments already won lost through indifference.

↓ **Father and son share an afternoon.**

Wildlife club mem

In 1952, the Edgecombe club was reorganized and today has about 250 members. The program of the club is supported by annual dues of $3 for non-farmers and $2.50 for farmers. Regular meetings are held on the first Monday of each month and are made interesting enough to maintain a high attendance. A good supper is a feature of each meeting and is followed by a speaker or the showing of wildlife movies. During the rockfish run in the Tar River, a special feast of rockmuddle is now an established custom.

But the club does not thrive on companionship, entertainment, and food alone. Its success stems from the cooperative effort of its members in pushing a county-wide conservation program. Some of the club projects include: (1) Actively assists the Commission's farm game restoration program by encouraging landowners to establish food and cover plantings. (2) Interested members make visits to county schools to show wildlife films. (Over 25 movies are available for free showings from the Commission's library). (3) Each year a $25 Savings Bond is awarded to the boy or girl that wins the county-wide 4-H Club wildlife conservation project competition. (4) The club spearheaded a drive to establish a fishing access area and boat landing on the Tar River at Tarboro. Over $2,000 was raised for the project, which is now completed and open to the public. (5) The club sold stock for the construction of a 13-acre fishing lake, and in 1954 work was completed on the 500-foot dam. The pond is already producing good fishing, even bass in excess of five pounds. A picnic shelter, outdoor fireplace, and fishing pier were added to complete the facility. (6) An annual children's fishing rodeo is sponsored. (7) The club keeps tab on the conservation picture in the county, voicing opposition against pollution and other factors that affect wildlife adversely. It concerns itself with both State and national conservation issues.

Soon the horn signaled the end of the fishing rodeo, and the youngsters crowded around the judges' table to have their catch measured and counted. Sixteen casting reels were donated by local sporting goods and hardware stores, and these were awarded as prizes to the boys and girls catching the most bass, biggest bass, most bream, and biggest bream. The awards were broken down into two age groups, 5-10 years and 11-14 years, and into bank and boat fishing categories.

After the reels were awarded, a wiener roast brought the rodeo to a satisfying conclusion. The food was donated by local businesses and prepared by club members. Young appetites, whetted by an afternoon on the pond, were rampant. One youngster quickly downed four hot dogs, another five bottles of pop.

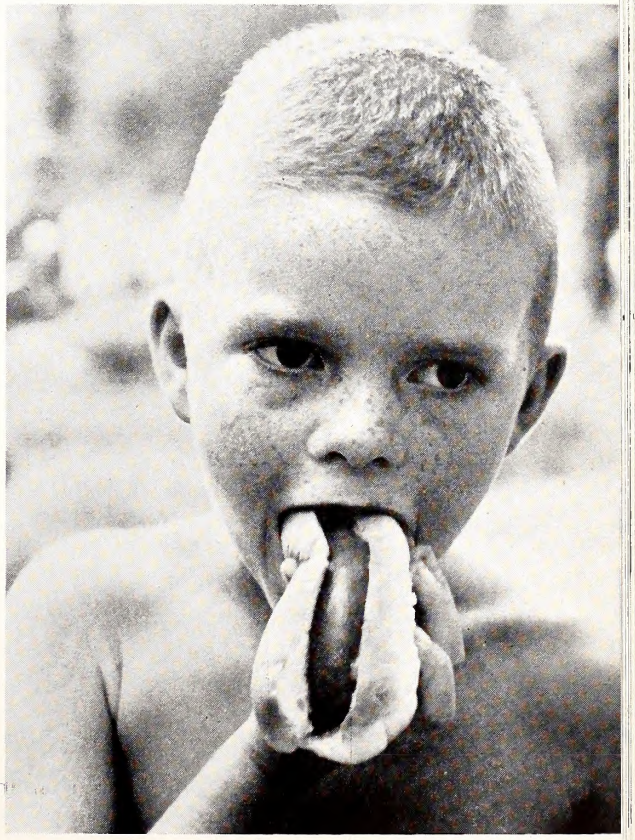
The rodeo was a great success, and before the last carload of youngsters had departed, Edgecombe County Wildlife Club members were talking about a bigger and better rodeo for next summer. They will hold it, too!

helping hand.

The most bream and biggest bass.

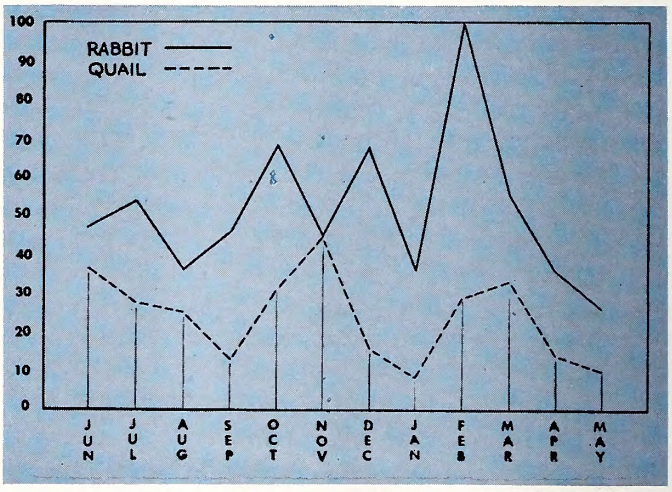
A prize winner.

Satisfying conclusion.



Two preceding articles have discussed the reasons for the development of a farm game program in North Carolina and the progress made during the last nine years. The need for the program was demonstrated by a survey which showed that more North Carolina hunters prefer to hunt farm game species than any other type of hunting sport. To assist the Tarheel sportsmen, the farm game program was designed to provide more and better habitat through the distribution of wildlife food and cover planting materials. The following observations and studies affect the present farm game management recommendations of the nine district biologists assigned to the project.

Nine Years of Progress in.



Monthly observations of sample shrub lespedeza plots showed both quail and rabbits using the plantings during every month, and that rabbits used the lespedeza even more than quail.

IN 1952 an effort was started to secure information regarding the duration of usefulness of wildlife plantings. Plantings selected for study were chosen from the 1950 ten percent check list. Those chosen had a survival rate of 70 percent or above, were planted in a recommended pattern, and were well located from a wildlife standpoint. These plantings were reinspected in 1952, '53, and '54. Plantings were divided into three classes: shrub lespedeza, multiflora rose, and combination plantings of shrub lespedeza planted adjacent to sericea lespedeza.

In the case of combination plantings, data on survival, growth, seed production, density of stand, and maintentance, apply only to the shrub lespedeza portion of the planting. Other data such as competition from other species, damage to plantings, number of plantings destroyed, and sign and species of wildlife utilizing the plantings apply to the entire planting.

The following observations were based on data gathered from an inspection of 113 shrub lespedeza plantings, 25 multiflora rose plantings, and 34 combinations of shrub and sericea lespedeza.

Shrub Lespedeza and Combination Plantings

1. The density of stand of shrub lespedeza increased as the planting became older, at least through the fifth year. This applied particularly to unmaintained plantings.
2. Competition from various pine and hardwood species occurred in about 50 percent of shrub lespedeza plantings.
3. Growth and seed production were termed good in over 60 percent of the shrub lespedeza borders inspected. These were 3, 4, and 5 years olds.
4. Maintenance practices were applied to six percent of shrub lespedeza plantings and 18 percent of the combination plantings during their fourth year of growth.
5. The rate of damage and destruction of shrub lespedeza plantings was three times as great when planted alone as when planted in combination with sericea. The rate of destruction of shrub lespedeza plantings alone was about 10 percent per year, whereas the rate of destruction in combination plantings was about three percent per year. It was apparent that sericea strips were acting as buffers for the shrub lespedeza plantings.
6. Grazing and plowing were the two most important agents of destruction of plantings.
7. In 1953, 36 percent of the combination plantings contained evidence of utilization by quail, compared to 18 percent of the shrub lespedeza plantings alone. In 1954, 53 percent of the combination plantings as compared with 17 percent of the shrub plantings alone showed evidence of use by quail.
8. In 1953, 24 percent of the combination plantings contained evidence of utilization by rabbits, while only 10 percent of the shrub lespedeza plantings alone showed use. In 1954, 17 percent of the combination plantings showed use while 11 per cent of the shrub lespedeza plantings alone showed rabbit use.

Multiflora Rose Plantings

1. The growth made by multiflora rose hedges in 1953, '54, and '55 was termed good in 30 percent, 66 percent, and 62 percent respectively, of the fences examined and fair to poor in the remainder.
2. Forty-four percent of the fences were undergoing competition from other species such as hardwood, pine, honeysuckle, and weeds in that order of im-

By Robert B. Hazel and Donald J. Hankla

HOW EFFECTIVE IS THE PROGRAM OF WILDLIFE RESTORATION THROUGH WILDLIFE FOOD AND COVER PLANTINGS? THIS IS AN EVALUATION OF NINE YEARS OF WORK.

FARM GAME MANAGEMENT

Travel lanes for wildlife are provided by multiflora rose hedges, such as this one bordering a field. Hedges should be located to provide connections between feeding areas.

Photos by Jack Dermid

Maximum production of shrub lespedeza seed was 630 pounds per acre in one plot, but most sample plots yielded much less. It is now recommended that the minimum planting area be at least ¼ acre.

portance.

3. Fifty-five percent of the rose fences inspected were fertilized in 1953, 25 percent in 1954.
4. Rose fences are destroyed at an average rate of five percent per year; however, the actual date of destruction decreases considerably as the plantings become older and better established.
5. Seventy-eight percent of the rose plantings inspected in 1953 were judged capable of developing into a livestock-proof fence. Poor initial survival, severe competition from weeds and grass the first year, and grazing were found to be the major reasons that rose plantings did not make fences and travel lanes for wildlife.
6. In 1953, 17 percent of the rose fences inspected contained evidence of use by quail, 34 percent by rabbits. In 1954, 25 percent of all rose fences contained evidence of use by quail, 17 percent by rabbits.

Seed Production of Shrub Lespedeza Plantings

The standard recommendation for perennial food patches was ⅛-acre of shrub lespedeza. This recommendation was based on the theory that shrub lespedeza produced seeds at the rate of about 500 pounds per acre; thus ⅛-acre would provide about 60 pounds of seed—which is thought to be sufficient for its intended purpose. It became apparent after several years of observation that the average planting in North Carolina was not producing at this rate.

In the early fall of 1955, 28 shrub lespedeza plantings were chosen for the purpose of determining seed production. The plantings selected represented the various physiographic regions of North Carolina and were thought to be average or above in seed production. Two seed traps, two square feet in size, were placed in each planting to catch the natural seed fall. The average yield of the 28 plantings was 265.8 pounds per acre or 33.2 pounds of seed per ⅛-acre planting. Four plantings which had been maintained by cutting back and fertilizing produced an average of 430 pounds of seed per acre, with one of the four producing at the rate of 630 pounds per acre. Three plantings which had been cut back, but not fertilized, were found to be producing seed at the rate of 215 pounds per acre.

Seed production of 28 plantings was again determined in 1956. The average yield was 204 pounds per acre or 25.5 pounds of seed per ⅛-acre planting.

It is thought that a minimum of 60 pounds of shrub lespedeza seed should be produced at each location where a planting is expected to be of value to a covey of quail. Since the 1955 seed collections indicated that ⅛-acre plantings were not large enough to produce the desired amount of seed unless properly maintained, and since the majority of landowners do not maintain their plantings, it has been found necessary to recommend that the size of shrub lespedeza plantings be increased from ⅛-acre to ¼-acre.

Utilization Study of Wildlife Food and Cover Plantings

During the early years of the project it was recognized that there was a need for utilization data to substantiate the theory that habitat plantings established as a result of the Commission's farm game program were being utilized by quail and rabbits. The purpose of the study was not to determine the number of rabbits and quail using the plantings but instead to determine if these species were utilizing the plantings. Selected plantings were carefully searched at monthly intervals for signs of quail and rabbits. The plantings studied were located on five farms, three in the Piedmont region and two in the mountains. Not all of the plantings were visited each month; consequently, the number of plantings varied over the 24-month period.

An analysis of planting utilization data indicated that shrub lespedeza and multiflora rose plantings received a great deal of use by quail and rabbits. It was noted that rabbit sign was observed every month in about 50 percent of all shrub lespedeza plantings during the course of two years of study, June 1954 to June 1956. Quail sign in shrub lespedeza plantings was also observed during every month of the two year period, but to a lesser degree. Rabbit sign was noted in over 50 percent of all rose fences nearly every month throughout the two years. Quail sign in multiflora rose plantings was observed only occasionally.

Status of Current Program

Observations and studies previously discussed have led to changes which are considered to have been of significance in improving the farm game program.

1. A comprehensive plant observation and selection program conducted with the help of the Soil Conservation Service resulted in the use of a wider variety of more desirable strains of plants which were better adapted to soil, and climatic conditions. This activity is considered to be of major importance and is being continued at the present time and includes the testing of both perennials annuals.
2. It was found that the hiring of farm game helpers to assist project personnel in promoting farm game management on the community and county level was very beneficial. Many more cooperators were reached, the amount of planting materials distributed was increased, and planting success was improved as a result of additional individual attention given to cooperators.
3. The integration of annuals and perennials into a comprehensive management program provided additional benefits. Cooperating farmers could see the results of habitat restoration much more readily when annuals were used in conjunction with perennials. Annual plantings tend to concentrate the birds in the fall during the hunting season but apparently do not greatly affect winter carry-over without the aid of perennials.
4. A food supply is desirable the first year that a planting is established, and since most shrub lespedezas do not produce seed until the second year, the practice of overseeding these plantings with annual lespedeza has been adopted.
5. On the basis of seed production studies of established plantings the recommended size of shrub lespedeza plantings has been increased from 1/8-acre to 1/4-acre. It was found that the average 1/8-acre plantings were not sufficiently maintained to produce the desired amount of food.
6. Since the success of farm game management is in direct proportion to the interest of the landowner, the program was broadened to include not only the state-wide development work on a large number of farms, but also intensive farm planning for a minority of landowners who showed enough interest to justify this degree of individual attention.
7. Experience has shown that there is a need for protecting plantings from livestock in areas which are intensively grazed. Fencing is furnished to landowners whose plantings meet certain specifications. In order to qualify for free fencing, the landowner must be a member of a Community Farm Game Development Group and must sign an agreement to protect and maintain the planting.
8. It is recognized that there is a continuing need for evaluation studies to insure that the farm game management program continues to serve its intended purpose.

Game production on farms where pastures occupy a large part of the land can be increased by the use of multiflora rose hedges such as the one seen across the valley.

Present Concept of Farm Game Management in North Carolina

The need for farm game management in North Carolina is as great now as it was in 1948. Agricul-

While better supervision has helped increase planting success, developments in handling and shipping have also increased the percentage of successful plantings. Here a sugar sack is used for packaging seedlings.

tural trends have not changed, but have become more intensified. Clean farming methods and the control of insects and weeds in crop fields prevails as a standard farming practice. The diminution of farm game populations is certain to continue on a state-wide basis unless present trends are modified. It is the objective of the farm game program to retard the present downward trend by accomplishing state-wide habitat restoration.

Suitable habitat is essential to the survival of wildlife. It follows, therefore, that the first step in any farm game management program is the development of suitable habitat. It is impossible to return to the agricultural methods used many years ago when rail fences were commonplace and farm game was plentiful. Hence, it is necessary to develop methods of farm game management that are compatible with the average present-day farming operation such as crop rotation, strip farming, fallowing, and leaving strips of seed-producing crops unharvested along field edges. After these basic farm game management practices have been accomplished, the establishment of supplementary food and cover plantings should follow. Plants used in establishing these plantings should consist of shrub and sericea lespedezas, multiflora rose, and various annuals.

Review of data indicates the program followed is basically sound and effective. It has been observed on many farms and in many sections that habitat restoration has meant the difference between the presence or absence of game.

Payoff for the hunter is the object of game management, and this program has resulted in more birds in the hands of more hunters.

Youth and Conservation
BOY SCOUTS
Projects

By Bill Hamnett

CONSERVATION participation in the Boy Scout and Explorer program here in North Carolina increased 400% from 1952 through 1956. For the sportsmen of our state, and the wildlife resources they pursue, this is a healthy situation because these boys today are the sportsmen of tomorrow. The training and experience gained through the Scouting program will put safer and more thoughtful persons in our fields and forests, and on our lakes and streams.

Selecting five of the outdoor-type merit badges, a very interesting report was received from 11 of the 12 Scout Councils in our state. The chart will show the number of badges earned by boys each year in the selected merit badges.

The Nature badge is required as a boy advances to the Eagle rank, and he must earn one of the conservation badges too (Wildlife Management, Forestry, or Soil and Water Conservation). Fishing, an elective badge, as you see had the second highest number of participants. This is interesting because a national survey completed in 1955 indicated about twice as many people go fishing as go hunting and this shows up here in the Scout report too.

During this period of time 128 conservation camporees or outings were held and there was an estimated attendance of 33,300, possibly some boys attended several. The report of these 11 Councils shows an enrollment of 38,899 Scouts and Explorers.

The Commission has seen and recognizes the good work Scouts are doing in conserving our natural resources. We congratulate the professional scouters, the scoutmasters and advisors for guidance of the boys in this most worthwhile undertaking. America is no stronger than her remaining natural resources.

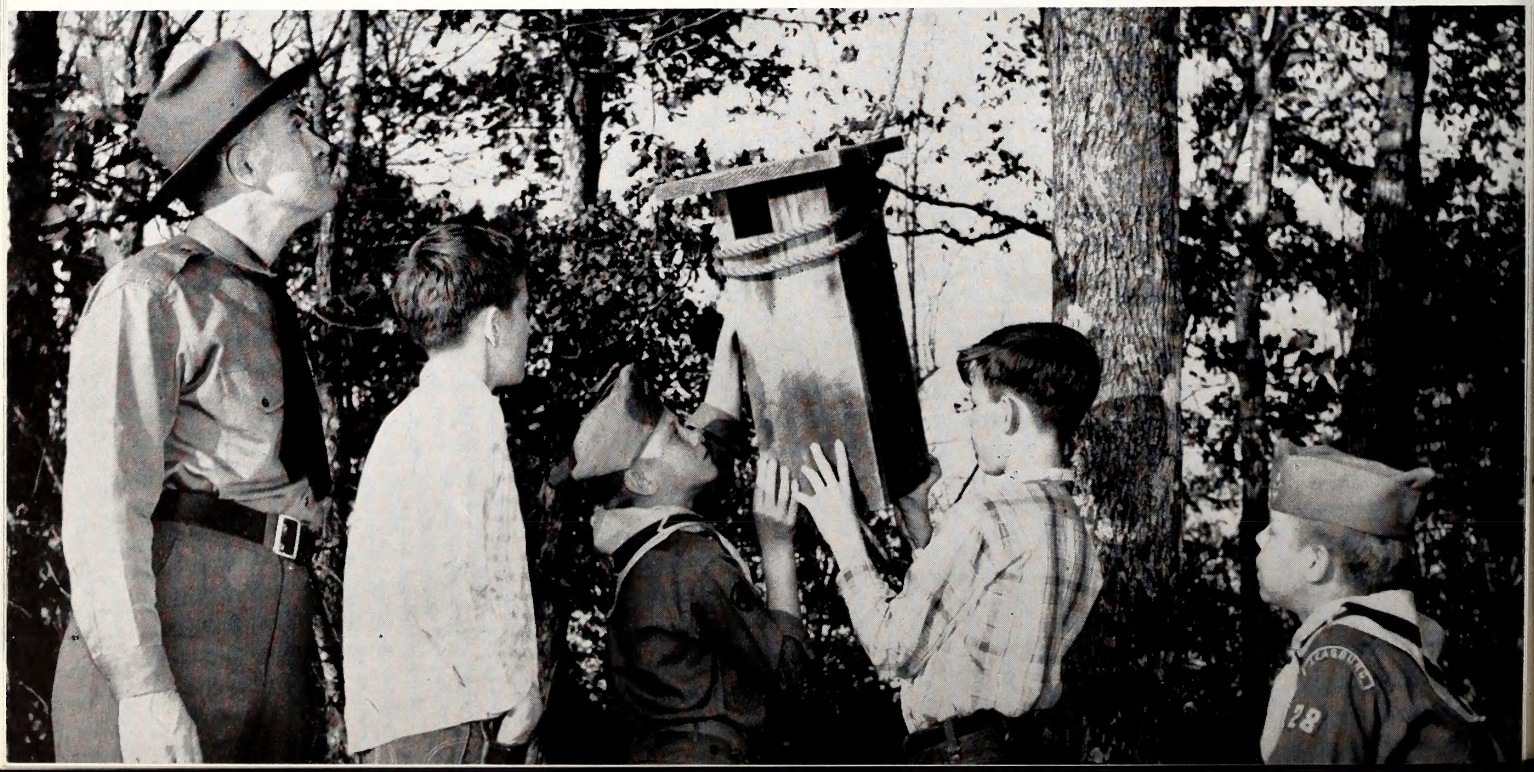
BOY SCOUT MERIT BADGES IN NORTH CAROLINA

(Reports from 11 of 12 Scout Councils)

	1952	1953	1954	1955	1956	TOTALS
Wildlife Management	24	174	327	491	327	1,343
Forestry	330	458	706	727	653	2,874
Soil & Water Conservation	36	116	288	301	386	1,127
Nature	88	476	803	632	814	2,813
Fishing	108	320	788	643	645	2,504
Total	586	1,544	2,912	2,794	2,825	10,661

Boy Scouts have participated in such conservation efforts as the construction of squirrel nest boxes, which are placed in suitable den trees to supplement natural holes where squirrels can rear their young.

Photo by Jack Dermid



The Wildlife Resources Commission recently met in Raleigh in their new quarters in the Motor Vehicles Building. Left to right around the table are: C. T. Wilson, Biltmore, District 9; Thurman Briggs, Lexington, District 6; G. E. Beal, Red Oak, District 3; James A. Connelly, Morganton, District 8; O. L. Woodhouse, Grandy, District 1; Clyde P. Patton, Executive Director; Robert M. Carr, Wallace, District 2; S. I. Stuart, Greensboro, District 5; J. A. Bridger, Bladenboro, District 4; and R. Floyd Crouse, Sparta, District 7.

PROTECTOR OF THE MONTH

Tommie F. Osborne

Mr. Tommie F. Osborne was born in Ashe County on December 12, 1910, and received his education in Boone, North Carolina. He worked as a motion picture operator for twenty years prior to December 15, 1948, when he was employed by the North Carolina Wildlife Resources Commission as Wildlife Protector for Watauga County. He has attended two Wildlife Protectors' Training Schools.

A World War II Veteran, he is married and has one daughter. The Osbornes attend the First Baptist Church in Boone, North Carolina, where they reside.

ENFORCEMENT RECORD FOR DECEMBER

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of December, 1957.

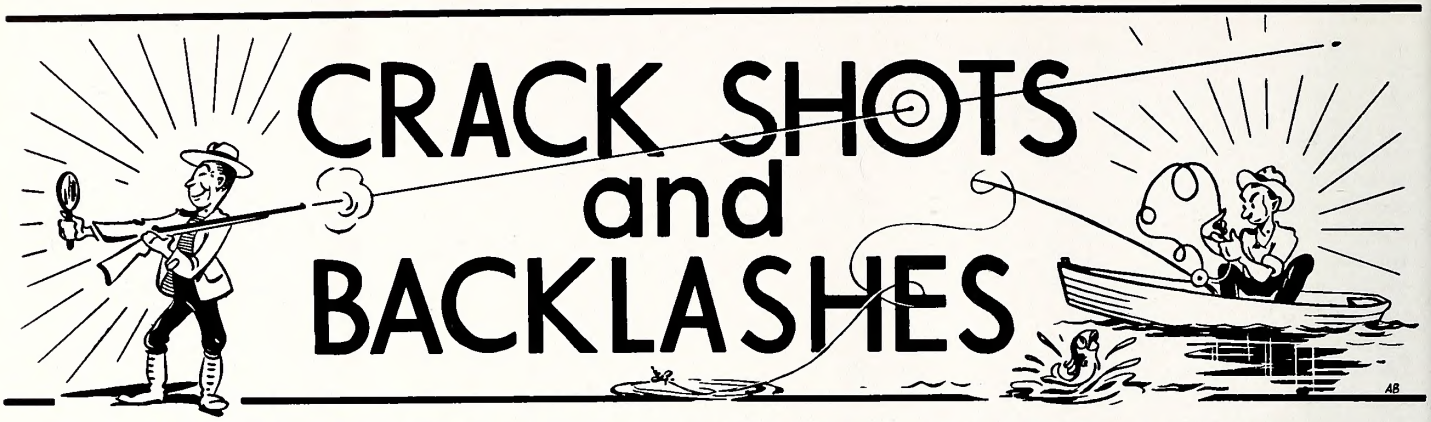
Persons checked	**29,510**
Total prosecutions	**634**
Total convictions	**580**
Total cases not guilty	**45**
Total cases nol prossed	**9**
Total fines collected	**$4,795.00**
Total costs collected	**$4,292.92**

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

Question: Is it a violation of the law to take non-game fish with bow and arrow?

Answer: It shall be unlawful to take or attempt to take any fish by means of a bow and arrow, except that such devices may be used to take non-game fish when the user thereof has obtained a *Special Fishing License,* which will designate the waters and county in which and the times during which its use is permitted.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

We got this in the mail from old friend Lucretia, probably in lieu of a valentine:

Dear Sir:

I have just received my 1958 calendar, and find no reference to the four seasons. Can you tell me what these are?

Yours sincerely,
Lucretia Plymph
Wake Forest.

Somebody flubbed the dub, Lucy, but as far as we are concerned, here are the four seasons: fishing season, hunting season, open season, and closed season. You can fit them into the year as they roll around.

—Ed.

Lots of interesting letters for this issue, such as this one from a friend who wants his name withheld.

"Dear Sir:

"On the October 1957 cover of your magazine you have a picture of a Ruffed Grouse and a trailing plant. What is the name of the plant. It looks a little like a brier that grows around here, but I don't see any briers in the picture. Also the leaf is not like the leaf of any honeysuckle I'm familiar with.

"I would also like to know if you could tell me of a place where I could still hunt deer alone. That is, a place not too far from here. How can one get permission to hunt deer around Fort Bragg?

"Last spring I made four trips to see if I could get close enough to a deer to make a standing shot. I was successful in doing this and did not spend more than three or four hours in the woods at a time. In fact the deer seemed pretty tame to me, but I doubt that they would be so during hunting season.

"I just read the above over and don't want you to get the wrong impression. I didn't do any shooting. Didn't have a gun. I just looked at the deer.

"I climbed out of a gully and stood in full view of the deer. They just looked at me. I then waved my hat—they still did not run but stood at 'attention.'

"I then walked about 30 steps toward them before they took off. While walking in the woods alone in the last four years I've 'walked up' on different occasions on one fox and three turkeys in less than one mile of my home. In fact last May I was looking at a turkey for 20 minutes before it got wise that I was there and flew off. It was just after a rain and it was in top of tree and working on its feathers with its bill. I got a real kick out of this and it is related to the reason I would like to try my luck still hunting a deer alone.

Yours truly,
Name withheld by request."

The trailing plant is a species of smilax, commonly called cat briar. For still hunting we recommended Uwharrie or Butner, in open season of course.

"Dear Sir:

"During the past year I have moved from North Carolina to Northern Virginia and do not intend to renew my subscription to WILDLIFE IN NORTH CAROLINA.

"You played hookey today? WHERE?"

"I would like to express my most sincere appreciation and well deserved praise to the Wildlife Resources Commission for the fine work they are doing in promoting the development and use of North Carolina's hunting and fishing facilities and resources. You should be particularly commended for your fine publication WILDLIFE IN NORTH CAROLINA. I have never enjoyed a finer, more interesting, and more reliable wildlife publication, including those at several times the cost, than yours. I have particularly enjoyed the fine pictures and features, and the editorial preparation which has made the magazine equally enjoyable to my children.

"Although my residence in North Carolina was brief, my association with your Commission representatives (particularly Mr. Paul Metters of Onslow County), and the many hours of enjoyable hunting and fishing in North Carolina will never be forgotten. On my return, as someday I will, you may be sure that I will be renewing my subscription to WILDLIFE IN NORTH CAROLINA.

Very truly yours,
Robert E. Brant
Lieutenant Colonel,
U. S. Marine Corps"

"Dear Sir:

"I am writing you to express my gratitude for the pleasure your fine commission afforded me and my friends this past summer and fall while fishing in the wildlife lakes in and around Hoffman, N. C. I was not familiar with those lakes until reading about them in WILDLIFE magazine this summer. After reading that article I started fishing Gum Swamp, McKinney and the other lakes with unusual success. I had the pleasure of watching my brother, father, and fellow employee catch several bass in the 7-9 pound category. We landed numerous jack and several large bream. It is 100 miles from Burlington to Hoffman but, instead of driving 237 miles to Currituck, we made the two hour trip to Hoffman and enjoyed it much more than any trip we ever made to Currituck. The feeling that we would land a monster at any

moment was always with us and Currituck never afforded us that elated feeling. I personally lost several bass above the five pound mark.

"We were contacted by the game wardens on two occasions and they were very pleasant in their approach and conversation. There are about twenty of my fishing friends in Burlington who plan to fish those lakes next year and we are looking forward to next season and many pleasant hours on 'our' lakes. At the moment, we are interested in fishing, and since those lakes are closed, we would like pertinent information regarding fishing on Ft. Bragg and Camp Mackall. An article in the 'Greensboro Daily News' on November 16, stated that the ten lakes at Ft. Bragg and Camp Mackall are under the supervision of the Wildlife Resources Commission. We would like to know if those lakes are open to civilian fishermen. If so, will you be so kind as to send me the information regarding regulations, fishing days and hours, information regarding locations of the lakes, checking stations, etc. Any information you may have concerning fishing on those lakes will be greatly appreciated.

Gratefully yours,
Clarence W. Swinney,
Burlington, N. C."

Although the lakes at Fort Bragg are generally classified as public waters, and the enforcement of fishing regulations comes under the Wildlife Resources Commission, access to them is under direct control of military authorities. Civilian personnel would have to have permission from the Commanding Officer of Bragg or his authorized agents.

The lakes on the Sandhills wildlife Management area have been under state control for a number of years. Most of them have been drained, cleared of stumps and otherwise renovated. Some are being used in an experimental project to learn more about fisheries management in waters of this type. Some real lunkers have been taken from these lakes, and with continued management more may be expected.

Poor fish management! These water birds, grebes and kingfishers, should not have been killed because they help the pond owner control over-populations of stunted, under-sized fish.

Officers of the North Carolina Wildlife Resources Commission were elected for 1958 at the Commission's January meeting in Raleigh. Left to right are Thurman Briggs, Lexington, Vice-Chairman; James A. Connelly, Morganton, Chairman; and Robert M. Carr, Wallace, Secretary. Chairman Connelly and Vice-Chairman Briggs have been members of the Commission since 1951, while Secretary Carr was appointed to the Commission in 1955.

"Dear Sir:

"I'm writing you in reference to my subscription for your WILDLIFE Magazine. I had it in mind that I was paid up for two years, but I wasn't sure as I have not received one in about six months. Would you mind checking up on this for me? I don't want to be without WILDLIFE. I enjoy reading all of your magazine, but as my wife's home is near a small town on the Intercoastal Waterway, we both love to read all articles pertaining to that part of the country.

"Our home is about three miles south of Holden's Beach right on the waterfront. It's sure a wonderful place to live and we hope to make it our permanent home in a year or so.

"We now live in the Sandhills region as it's nearer my work. You have a lot of fine articles on this too.

"I'd like to congratulate you and the writers of this magazine—you have done a wonderful job of covering as much territory in North Carolina as you have. And we all want to hear about places and things in our state.

"Thank you.
Yours sincerely,
Joe Smith, Aberdeen, N. C."

"Dear Sir:

"A year or so ago one of your subscribers, Nelson Borst Vroman, sent me a copy of WILDLIFE IN NORTH CAROLINA. I have been getting it regularly ever since. It is a dandy magazine in every respect. As much as I hate to mutilate a copy, I am going to frame the cover picture of the November issue. It's great.

"I write a weekly column for a number of area papers as The Woodland Reporter. Also a column YESTERYEAR. I wonder if you would permit me to quote from your Editor in the November issue on The Outstretched Hand? It is a timely

The ninth annual Valentine Day Fox Hunt will see a repeat of scenes like this as hunters and hounds chase Bre'r Fox across the dunes, forests, and swamps of Nags Head. Expected to be the biggest yet, 75 people and 150 hounds were registered by mid-January. John Ray Watkins of Oxford will be Master of the Hunt; Ed Lamb of Rocky Mount will be Master of the Hounds. Reservations may be made at the Carolina Hotel for the event, which will be held February 13, 14, and 15 at Nags Head.

article on a subject with which we have much in common.

"Of course I will give you and your paper full credit and would send a copy of our paper. The question of POSTING grows ever more serious, especially during the deer hunting season as thousands upon thousands of New York and New Jersey hunters swarm into our Catskills. Cattle, goats, house cats, even horses, get shot, to say nothing of the humans.

"Then too, our woods are filled with the rotting carcasses of dead does, shot prior to the legal day for such shooting. Yes, your paper is a dandy and clearly tells of conditions similar to ours. I would like, very much, permission to quote from it, and your Editorial.

Very sincerely,

Vernon Haskins, East Durham, N. Y.

Thinking that the November cover would be popular with people having a sense of humor, we had some extras run. These are suitable for framing. Free to anybody writing in, first come first served.

Pea Island honker. Considerable work and effort goes into the trapping and banding of waterfowl, and sportsmen are urged to do their part in the Fish and Wildlife Service's nationwide migration study by returning leg bands with complete kill information.

Happy to know that our stuff may be of some service in other states. All material in WILDLIFE may be reprinted on request unless it is specifically copyrighted. The problem of farmer-sportsmen relationships is a nationwide matter, more complicated in heavily populated states than in those sparsely settled. North Carolina, too, has a problem in connection with illegal killing of doe deer and out of season deer hunting. State law provides for heavy fines, imprisonment, and the confiscation of guns and vehicles used in deer poaching. Due to a good job of law enforcement, there is not as much illegal deer killing now as there was ten years ago. Further, it is evident that public opinion is slowly building up against poachers of all types. In past decades the guy who poached a deer successfully was considered something of a local hero. In recent years more and more people recognize them more as local heels instead of heroes.

"Dear Sir:

"I thought the hunters who go after big game might be interested in knowing that they now can obtain a shell for their high powered rifle where they will be able to shoot cheap ammunition.

"The shell has no bullet in it; instead it has a device where you can insert a low powered shell, for example—a 30-30 shell that you can order will take a 32, and there are a number of other high powered shells that will take other low powered ammunition. You can get the address out of the shooters 'Bible.' The price is $1.50 each. This is a cheap way to target practice and it's great for small game.

Sincerely yours,

Dickie Parker, High Point, N. C."

This sounds like a good idea, but anyone fooling with ammunition should keep in mind the safety angle. One of the rules of firearms safety is "know your ammunition."

MORE STUDENTS NEEDED IN FORESTRY

The profession of forestry badly needs to attract a larger percentage of superior high school graduates into the forestry schools. While enrollment at N. C. State has increased from 164 in the fall of 1952 to 303 in the fall of 1957, jobs continue to far outstrip graduates. At no time in the last four years have jobs been unavailable,

and generally there have been 5 to 10 jobs per graduating student.

Entering salaries are continuing to rise and are now competitive with the highest paying professions. This year these beginning salaries ranged from $4300 to $5000 for graduates in forest management and averaged $6000 for graduates in Pulp & Paper Technology. Young men of ability have never had as many fine career opportunities in all fields of forestry as await them today.

Long term career opportunities appear equally bright. Prof. W. C. Percival, Head of the forestry program at West Virginia University has just completed a survey of the future job situation. Based on figures secured from major private and public employers of foresters, his following tabulation shows a continuing shortage of foresters through 1963, barring either a major war or serious business recession.

Friends of forestry can perform a real service to the profession by participating in High School Career Days and by otherwise acquainting high school students with the outstanding opportunities now available. The Forestry Schools have literature on programs and opportunities available to all interested.—Dean R. J. Preston, N. C. State College School of Forestry.

Dr. John M. Battersby
1530 Shady Lane
Gamesboro, North Carolina.

Dear Doc:

I want to remind you that this is the month that you should cut back and fertilize your shrub lespedeza borders. The last time that I was down to see you, I noticed that the border along the woods behind your fishing shack was not producing seed like it should. The border beside the rose fence would also do better if it were properly maintained this year. The new rose fence (the one that you put in last spring) should be fertilized, too.

I suggest that you cut the old shrub lespedeza stalks about a foot from the ground with a mower or brush ax. Apply about 50 pounds of 2-12-12 or similar analysis fertilizer to every 1000 plants in the border. About 10 pounds of 6-8-6 or 8-8-8 fertilizer per 100 feet of row would be best for the new rose fence. To get the most from your borders they must produce an abundance of high quality food and cover.

Whenever I talk or write about wildlife food and cover plantings, I always recall what you once said, "Wild animals aren't fools. They're going to be where the best food and cover is growing." It's our job to see that there is plenty of the very best food and cover for them to use.

Sincerely yours,
B. J. Verts
Game Biologist

cc: WILDLIFE Readers
P. S. Don't forget to let me know when the bream start biting.

Use this blank to subscribe NOW—$ .50 a year $1.00 for two years. No stamps, please.

WILDLIFE IN NORTH CAROLINA **New** ☐

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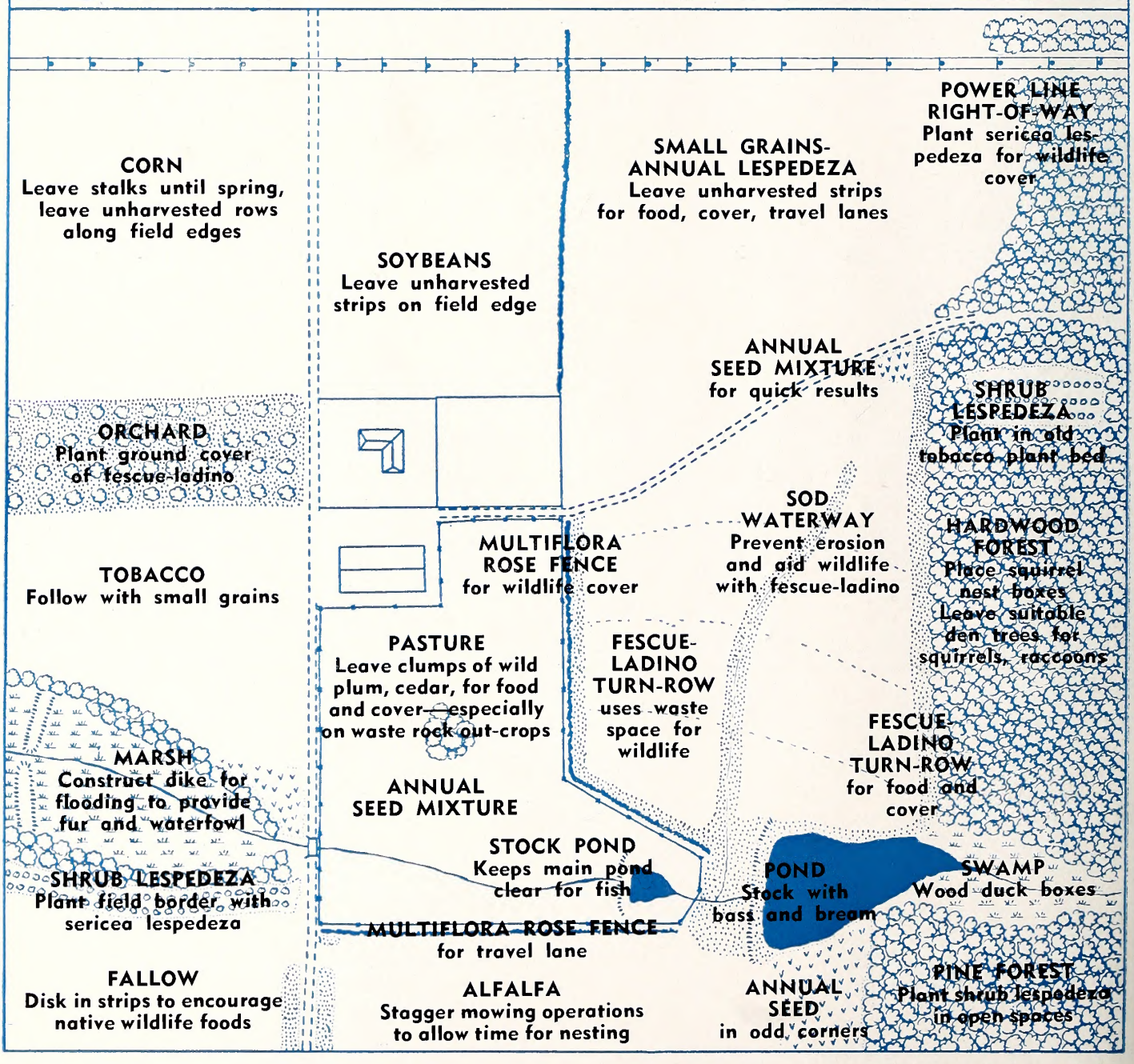
BLUEPRINT FOR FARM GAME

HERE ARE SOME PRACTICES THAT WILL HELP PROVIDE FOOD AND COVER FOR WILDLIFE. FREE SEED AND SEEDLINGS ARE AVAILABLE FROM THE WILDLIFE RESOURCES COMMISSION FOR SOME PRACTICES, AND SOIL BANK AID WILL SHARE THE COST OF THESE AND OTHER CONSERVATION PRACTICES.



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Wildlife

MARCH-1958

TEN CENTS

in north carolina

Photos by Jack

Beach Patrol

The willet, the turnstone, the oystercatcher, yellowlegs, plovers, and sandpipers: these are among the ranks of the beach patrol. With probing bills, they search the sands and mud flats for crustaceans and mollusks and other foods, darting up the beach to escape advancing waves, rushing back to grab tidbits the water has uncovered. Some species are present all year, but their peak of variety and abundance occurs during the spring and fall migrations. Then North Carolina's 330-mile coast line becomes alive with their flocks. Shorebirds provide the challenge of identification for the bird enthusiast, pleasure and companionship for the surf fisherman or beachcomber. Although protected today, certain species were once slaughtered by the thousands by meat hunters.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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THURMAN BRIGGS, *V. Chm.*	Lexington
ROBERT M. CARR, *Sec'y*	Wallace
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ANNE TAYLOR	Circulation

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COVER

Warm days in early spring bring bears out of hibernation and lure freckle-faced boys to the creek banks for an afternoon of fishing. Gilbert Currin, Harnett County lad, tried his new spinning rod at Buckhorn on the Cape Fear River and landed this big chain pickerel, or jack. Fishing with his grandfather, Gilbert hooked and landed his prize all by himself—quite a feat for a ten-year-old. The chain pickerel is one game fish that doesn't seem to mind cold water, since he will take a minnow in the chill of late winter almost as readily as he does later in the year. Try it yourself and see.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

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SIGN of the *Flying Goose*

U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
NATIONAL WILDLIFE REFUGE

Photos by Jack Dermid

National Wildlife Refuges are an important part of our outdoor heritage—public lands, like National Parks and Forests, for all persons to use, enjoy, and protect from exploitation. Here is the refuge story, presented by the National Wildlife Federation in support of the nationwide observance of National Wildlife Week on March 16-22. Protect Our Public Lands is the theme to be stressed in 1958.

Something's in the air. Something big is about to happen and you feel it all around you. The dawn is gray and cold as if the houselights had been dimmed for a performance in a great theater. There's a brisk wind blowing in from the lake, pelting you with tiny frozen drops that melt as they hit your face. You look around and listen. Before you the giant marsh grasses hiss and move in rhythm with the whistling wind. To the left the somber pines catch the wind like bagpipes and deepen the resonant chords of nature's mystic sounds. Low-lying gray clouds rush across grayer skies as if in a hurry to get out of the way. Suddenly the marsh comes to life — and birds — everywhere birds — large, small — light, dark — calling, feeding, flying — adding life and color to the drab morning.

We look across the lake and watch. . . and wait . . . and wait. Suddenly the wind stops — the grasses stand silent — the trees are mute. We stand — not moving — and probe the sky — Wait — Did you hear something? — Where? — From the north? — We look again — Yes, from the north. Now YOU hear it. Once again the wind begins to drone — the grasses take up their rhythmic movement — the sky is alive — alive with giant V's — V's stretched as far as you can see. Some irregular and broken, others sharp and defined. You hear them too — the newcomers — their babbled calls filling the air. Now they are overhead and beginning to come in — by the thousands they come — floating downward, slipping from side to side like torn bits of paper. . . Weary travelers coming home to spend the winter — seeking rest at Mattamuskeet.

Mattamuskeet National Wildlife Refuge is a waterfowl haven, located in the coastal region of North Carolina, serving as a wintering area for thousands of Canada geese, whistling swans, and untold numbers of resident water birds. Mattamuskeet serves also as a safe resting place for thousands of other birds whose migratory paths follow the Atlantic Flyway. This area is one of 275 wildlife refuges administered by the Fish and Wildlife Service of the United States Government. These refuges are located in practically every state and territory. They range in size from the one-acre Mille Lacs National Wildlife Refuge in Minnesota to the nearly three-million-acre Aleutian Islands Refuge in Alaska, which extends 1,200 miles from the tip

of Alaska west almost to Siberia. At the present time, over 17 million acres of federal lands are giving wildlife a place to live.

The National Wildlife Refuge System began about fifty years ago when Teddy Roosevelt was President. On March 14, 1903, an executive order created the tiny three-acre Pelican Island Bird Refuge off the east coast of Florida. This small island housed rookeries of brown pelicans which were being slaughtered for their plumage, used in decorating ladies' hats. This was the beginning of a series of executive orders. By 1906, three more refuges had been created and, in 1908, 36 small islands, mainly in Alaska, were set aside for the protection of colonial game birds.

Teddy Roosevelt was an ardent conservationist and his interest in the outdoors was reflected by the progress made in the refuge system during his administration. With this impetus, interest in conservation grew and, by the late twenties, executive orders had established such valuable waterfowl units as Malheur and Upper Klamath Lakes in Oregon, Tule and Lower Klamath in California, and Deer Flat and Minidoka in Idaho.

The federal government also acquired several big-game refuges during this period, either through donations by conservation organizations or special Acts of Congress. By 1929 there were 87 federal refuges of all types, including 61 bird reservations in 24 states and the territories.

In 1929 the Migratory Bird Conservation Act was passed. The legislation outlined a definite refuge program and added new incentive to the increasing numbers of people who had helped in the struggle for restoration of wildlife resources. This act authorized the Biological Survey to purchase large tracts of land for waterfowl, and by 1933, 5.7 million acres had been incorporated into wildlife refuges. Four and one-tenth million acres of these were in Alaska and 1.6 million acres were found in the United States.

With the early thirties came the Depression. This could have meant curtailment of the refuge program had it not been for the enactment, in 1934, of the Migratory Bird Hunting Stamp Act which furnished a boost to the lagging refuge program. This Act, generally called the "Duck Stamp Act," required all migratory bird hunters over 16 years of age to purchase a hunting stamp. These sales provided revenue for the purchase, development, and maintenance of refuges. During the same year, the President's Committee on Wildlife Restoration aroused Congressional leaders and an emergency fund of $8.5 million was allocated to accelerate the effort of saving lands where wildlife could rest, feed, and raise their young in safety. (Cont. Next Page)

YOUR HERITAGE

By Daniel H. Janzen, Director, Bureau of Sport Fisheries and Wildlife, U. S. Fish and Wildlife Service

The National Wildlife Refuges have led the way in the conservation of wildlife in this country.

What is a wildlife refuge? It's a place where wild creatures can find food, water, shelter, and a safe place to raise their young. Maybe it's a big-game range such as Hart Mountain or Sheldon Refuge which provided invaluable reservoirs of pronghorn antelope to reintroduce these animals in states where they were on the verge of extinction; maybe it's the three-million-acre Aleutian Islands National Wildlife Refuge which helped save the sea otter and guarantees the protection of untold numbers of sea birds; it could be Aransas Refuge on the Gulf Coast which offers the only known wintering ground for the rare whooping cranes; or the tiny three-acre Pelican Island Refuge in Florida, the first National Wildlife Refuge established 55 years ago by Teddy Roosevelt. Each of the 275 refuges is playing an important part in maintaining wildlife populations for the present and the future.

Although federal refuge lands comprise over 17 million acres of wildlife habitat—and the proposed Arctic Game Range will add another 5 million acres—these lands, dedicated to saving wildlife, are merely pinpoints in the overall areas used by wildlife.

By 1975, the population in the United States may reach 200 million people. As we humans become more crowded, we push, spread, and continue to jeopardize existing wildlife areas. We drain, fill, plow, burn, and otherwise destroy valuable wildlife homes with our expansion.

During the coming years it will take effort, money, and understanding to keep what we have and to enlarge our National Wildlife Refuge System.

Here are millions of acres of enjoyment and beauty. These lands are yours and their future is your continuing responsibility.

A flock of ring-necked ducks soars skyward at Pea Island National Wildlife Refuge on North Carolina's Outer Banks. The preservation and restoration of both breeding and wintering habitat is imperative if we are to have ducks and geese in abundance.

In the years that followed the long-planned program began to take shape. Field biologists selected areas of greatest value to migratory birds within breeding grounds, migratory routes, and wintering areas, as well as within the ranges of endangered species of big game and other wildlife.

The National Refuge System Today

As of June 30, 1957, approximately 17.4 million acres of land were dedicated to wildlife as part of the National Wildlife Refuge System. All kinds of wildlife are protected on these refuges. Many refuges, however, have been established and are now managed primarily for the conservation of one or more species. For administrative purposes the federal refuges are divided into four categories: (a) waterfowl refuges; (b) big-game refuges; (c) refuges for colonial game birds, and (d) general or special refuges for migratory birds other than waterfowl, and miscellaneous forms of wildlife.

In the 275 refuges there are about 9 million acres in the United States and approximately 8 million additional acres in the territories. Over 3 million acres have been established to aid waterfowl; nearly 11 million acres furnish ranges for big game; over 100 thousand acres serve as rookeries for colonial game birds, and approximately 3 million acres give other migratory birds and various forms of wildlife a place to live.

The selection of waterfowl refuges is directed toward the preservation of highly critical breeding areas which are being lost rapidly through drainage and other economic pressures. At least 12.5 million acres of wetland habitat must be added to this system to even maintain the present waterfowl population.

Waterfowl refuge management objectives include protection, production, use, and enjoyment of this resource. In waterfowl breeding areas, emphasis is placed on development and manipulation of the habitat in an effort to increase production. On refuges managed primarily for transient waterfowl, the aim is food production and the maintenance of aquatic habitat to provide resting places during the long migratory flights. On waterfowl wintering grounds, management practices are centered around the protection of basic breeding stock so it can return to the breeding grounds to rear healthy young.

The general refuge is designed to protect an endangered species or the limited habitat which it requires for survival. There is at present a great need for a number of these areas to safeguard such species as the whooping crane, the California condor, the Everglade kite, the prairie chicken, and dozens of other rare or vanishing species. A number of refuges now offer protection for animals which could not survive without this. It is essential that they be preserved for this purpose.

Federal big-game refuges are lands set aside to save species locally and to furnish breeding stock for the surrounding areas and other sections of the country. Here are found the bison, the antelope, the Kodiak brown bear and Kenai moose, and the desert bighorn sheep. These national refuges are within the normal ranges of American wild animals and birds where they may be perpetuated for all time.

In addition to their major purpose of protecting wildlife, National Wildlife Refuges serve conservation interests and contribute directly to the social and recreational life of the community. Conservation has been defined as the wise use of renewable resources. Consequently, refuge lands are dedicated to the management of wildlife and the wise use of this resource.

Using The Land For Wildlife

While the primary use of the National Wildlife Refuges is for the protection of wild animals, these areas are managed on a multiple-use basis insofar as this can be accomplished within the limitations of the purpose for which each area was established. This has permitted greatly increased public use of the refuges for fishing, controlled hunting, picnicking, hiking, and similar recreational pursuits. When these uses do not interfere with the primary purpose of the refuge—giving wildlife a place to live, grow, and reproduce—fishermen and tourists

are invited to share this great heritage. Many water areas developed primarily for migratory birds afford good fishing, and on many refuges this sport is one of the outstanding tourist attractions.

The Fish and Wildlife Service has found that land use practices must be adopted to primary purposes of the National Wildlife Refuges. The farming of refuge lands by local people for a share of the crop assures adequate feed for migratory waterfowl when they flock to these feeding and resting areas. Grazing is controlled in breeding areas to maintain satisfactory cover for nesting. Surplus fur bearers, over and above desirable breeding stocks, are trapped on the refuges by local trappers. The refuge buffalo herds are redudced each year in relation to the animal calf crop, thereby protecting the range from overuse and maintaining healthy, vigorous animals.

These surpluses are sold at public sales. One-fourth of the revenue received by the federal government from grazing, the sale of hay and other surplus products, is paid into the school and road funds of the county or counties in which the refuge is located.

Because the refuges afford sanctuary for many forms of wildlife, they offer excellent opportunities for natural history studies. They lend themselves to use as field laboratories for valuable conservation education programs conducted by youth and adult groups.

Looking Toward The Future

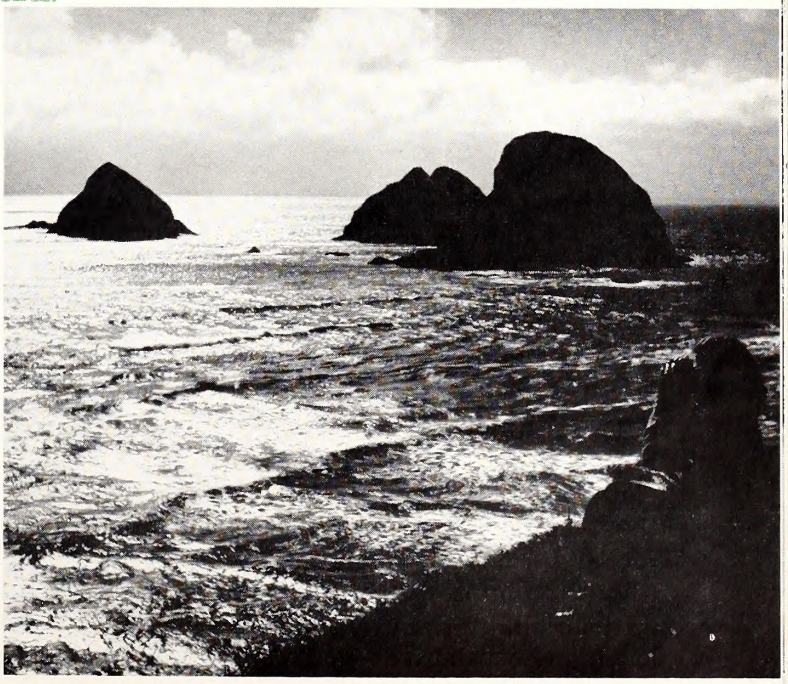
It is a tense, nervous, ever-changing world in which we live, and jangled nerves coupled with quick tempers are the result for most of us. Many have found that nothing relaxes them and clears their thinking quicker for the tasks ahead than a few hours in the out-of-doors. Here, their minds turn from every day problems and concerns to deep satisfaction that comes from association with the realistic things of nature. Who doesn't thrill when he first sights the returning robin while the winter snows still cover the ground? A greater thrill might come from the first glimpse of a grizzly bear or the sight of rare whooping cranes coming to rest on their wintering refuge at Aransas, Texas.

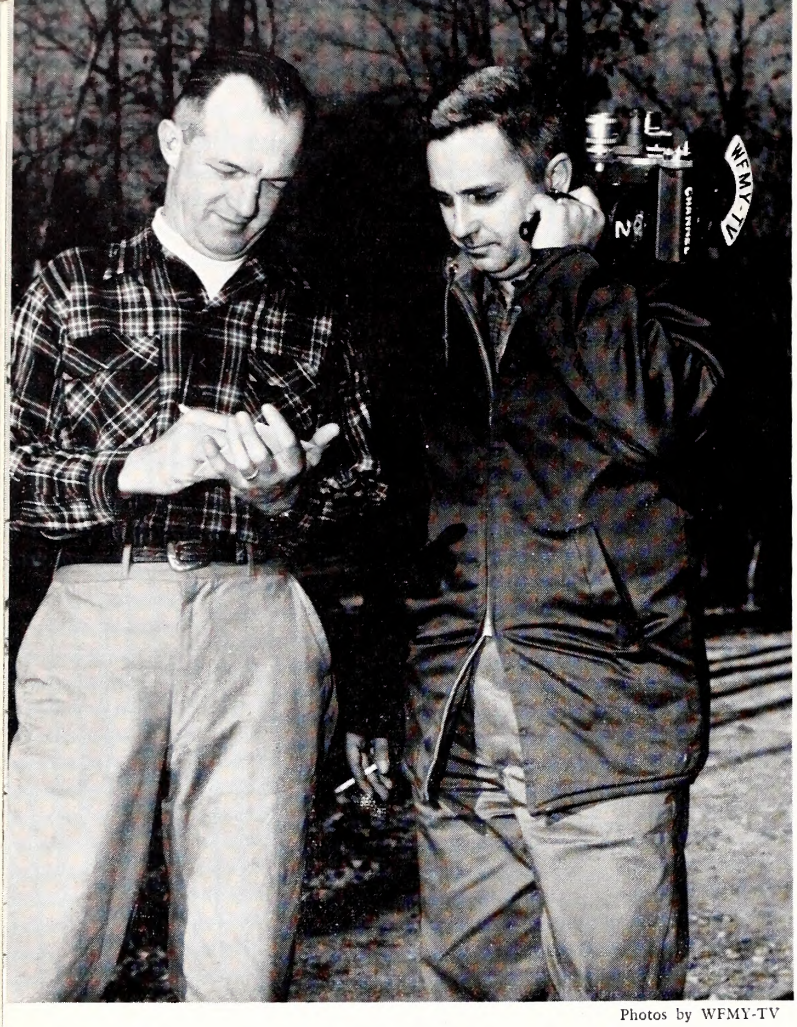
During 1956, over 8 million people visited National Wildlife Refuges, and more than one million people visited Federal Fish Hatcheries. Each year 10 million hunters spend approximately $1 billion hunting in this country, yet during the current fiscal year only $6 million are being spent for the operation and maintenance of the National Wildlife Refuge System. This amounts to roughly 33 cents an acre, certainly a pittance compared to the enjoyment, both aesthetic and sporting, offered by these lands.

At this time waterfowl habitat is being destroyed at a staggering rate. If we are going to have ducks and geese they've got to have a place to live, and millions of acres of wetlands are needed if we are to restore them to their former abundance. Many vital areas can be made highly productive by relatively simple and often inexpensive improvement measures—but *now* is the time we must act!

The old pumping station, now a modern lodge for tourists and sportsmen, is a familiar landmark at Lake Mattamuskeet, one of the few refuges where limited hunting is permitted. The recreational value of the National Wildlife Refuges is tremendous. Over eight million people visited them during 1956.

The Federal Refuge System extends from the Atlantic to the Pacific, from the Gulf to Alaska. In the United States, there are about nine million acres in 275 refuges. Shown is Three Arch Rocks Refuge in Oregon, the nesting place of countless water birds.





Photos by WFMY-TV

OUTDOORS WITH TELEVISION

By Charlie Harville
WFMY-TV, Greensboro

Know your outdoor writers. Charlie Harville, one of North Carolina's leading television personalities, tells how he produces his weekly show, "The Outdoorsman".

Charlie Harville and Buddy Moore discuss a program to be filmed for their weekly show on WFMY-TV, Greensboro.

For the past several years, I've conducted a program called "The Outdoorsman", seen weekly on WFMY-TV in Greensboro. As you outdoorsmen would guess, this show concerns itself with every phase of hunting and fishing. Many times, the program is made up of film taken in the field by WFMY-TV cameramen, processed, edited, and put together with words and background music for the program. One result has been to get me a lot of envy for the job that I have. People constantly say to me, "Man, you've got it made; all you do is hunt and fish, and then talk about it on the air." Well, it honestly isn't quite *that* easy, although I'll admit it is a pleasure. At least, the *making* of the film is a pleasure; but when it comes to editing . . . well, by the time you've stood in front of a film splicer and a viewer, and looked at the same piece of film a dozen times, it gets to be work.

In the process of gathering material for "The Outdoorsman", photographer Buddy Moore and I have traveled to such places as the State Bass Hatchery, near Fayetteville . . . the Trout Hatchery, at Blowing Rock . . . Hoke County for dove shooting . . . Kure Beach for pier fishing . . . Kibler, Virginia, for the opening of the trout season . . . Moore County for field trials and a deer hunt . . . and many more. That deer hunting trip was the most unsuccessful of them all, by the way. It involved a party of five leaving Greensboro at 3:00 a.m., driving to Raeford to meet my friend Red Scarborough, going to the hunting area, searching all over for game, and returning to Greensboro at nine that night, without having seen a single buck or doe. The night *that* film was to show, I called the Wildlife Resources Commission, got from Frank Barick all the information I could about the status of deer hunting in North Carolina, and just *talked* about deer hunting.

I'm far from being an expert when it comes to hunting and fishing, but there's nothing I like better. And Buddy doesn't hunt at all, except with that 16mm. camera, 'though he's now seen enough fishing to have caught that bug himself. I guess that any man who did hunt would be sorely tempted to drop the camera and pick up a shotgun or a rod and reel when confronted with plenty of action, but Buddy just keeps grinding away.

As far as possible, when a trip comes up, we plan our shooting schedule in advance . . . our film shooting schedule, that is. If we're going on a hunt, we get briefed on the kind of terrain we'll encounter, the people and dogs we'll see, and the way the game in that particular area is likely to act. Buddy, with his photographer's mind, maps out the position he'll want in regard to the hunters, to give him the picture that will look best on the TV screen. Personally, I just plan to do some shooting, or fishing, and let him worry about the pictures; he doesn't need any of my amateur advice along those lines.

After a freezing cold goose hunting expedition one year, Buddy learned the value of dressing like a hunter, and now he's ready for any kind of ground, any kind of weather. He has to dress and act like a hunter, too. For instance, when we went dove shooting, we built a cornstalk blind for the hunters, and another nearby, with the sun to his back, for Buddy and his camera. When we're fishing from a boat, Buddy usually goes along in another boat, and gets the action from close at hand as we (sometimes!!) pull in the fish. I'm reminded of a trip on which four men—three of them expert fishermen, the other one me—wet our lines for five solid hours, and wound up with one fingerling bass. Tom Mitchell, who caught him, was careful to get him off the hook and back into the lake before Buddy could get a picture of him.

I recall another similar trip when the fish didn't want to be on TV, and Jake Jones (he's a *great* fisherman) and I threw lures into a lake until it got too dark to see—but no fish. We've got 400 feet of beautiful color film from that trip, but with not a fish in the lot, the film is just gathering dust in my files.

I'll let you in on a trade secret. We like to show those terrific shots where, for example, a duck flies over . . . you see the duck, then you see the hunter shoot, the duck fall, and the dog retrieve. That kind of sequence is impossible to shoot with one camera at one time, because it requires the use of at least two, possibly three, different lenses, at various distances. So Buddy gets several shots of ducks in flight, ducks falling, hunters shooting, and dog retrieving. Then with the aid of a viewer—an electrical device which enlarges the film, and enables me to view it one frame at the time— I edit the various sequences into their proper places, and have (I hope) a great hunting scene. As I said in the beginning, that's where the drudgery comes in, because it takes 24 frames of individual pictures to make up just one second of action, and the editing job can get pretty critical. Let me emphasize, though, that we never "fake" a picture; if you see game shot or fish caught in one of our films, rest assured that what you saw really happened.

Despite the fact that fishing is my favorite sport, we have found less success with fishing films than with any other phase of outdoor action. That's because, as you fishermen know, some days they just don't bite, no matter how good the weather may be for picture-taking purposes. One of our most successful fishing films was baptized before it was developed. After our party of three had caught enough bass and bream to make a fine show, I decided to take one last turn around the lake, trolling for a lunker, strictly for my own fun. What Buddy and I didn't notice as we took off in the outboard was that I had bumped his film box into the lake; we found it floating a few feet from the bank when we returned, with 400 feet of exposed film inside. We didn't have much hope for that one, but the film turned out fine, with no more than 5 or ten feet hurt by the dunking.

We shoot color film exclusively now, and I hope that you get to see that film on a color TV set, for the shades of the outdoors in the spring and fall are even more beautiful on film, I think, than when you're seeing them in the woods or fields. We normally shoot about 400 feet of film for the show, and edit that down to some 300 feet, which times out to a little more than 8 minutes. That leaves us time for the commercials, and time to discuss hunting and fishing conditions around the state.

One of the greatest kicks I get out of our trips is the enjoyment of meeting wonderful people, fishermen and hunters from all around the state. I've learned a lot from a bunch of them.

Well (this being written in January), next week we'll try a rabbit hunting film. And maybe we won't see a single cottontail, but we'll get to hunt, anyway . . . and get *paid* for it, too. Man, I wouldn't trade jobs with *anybody!*

Buddy Moore goes into action with his motion picture camera during the filming of a Randolph County trip, where the television team did a program on training bird dogs. Most of the film used on the program is color.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Hunting Fatalities Show Increase

Reported to WILDLIFE at press time were a total of 20 hunting accidents during the 1957-58 hunting season. Of these, 13 were fatal. This compares with a total of 16 accidents last season with only three fatalities. Although these figures compare favorably with other states, wildlife officials and other conservationists were expressing concern over the careless use of firearms despite annual hunting safety campaigns.

Hardwood Veneer An Important Source of Income

Piedmont landowners would do well to follow the advice of the Furniture, Plywood and Veneer Council of the N. C. Forestry Association in managing woodlands for hardwood production. The Council has pointed out that a large Tar Heel industry depends on the production of hardwood, and properly managed hardwoods can yield an important income even to small woodland owners. Sportsmen can see the value of hardwood management to woodland wildlife species.

Trout Fishing Regulations Ready March 1

Special regulations for trout fishing in the wildlife management areas in Western N. C. will be available by March 1, according to the fish division of the Wildlife Resources Commission. Persons interested in obtaining the regulations should write to: Fish Division, Wildlife Resources Commission, Box 2919, Raleigh.

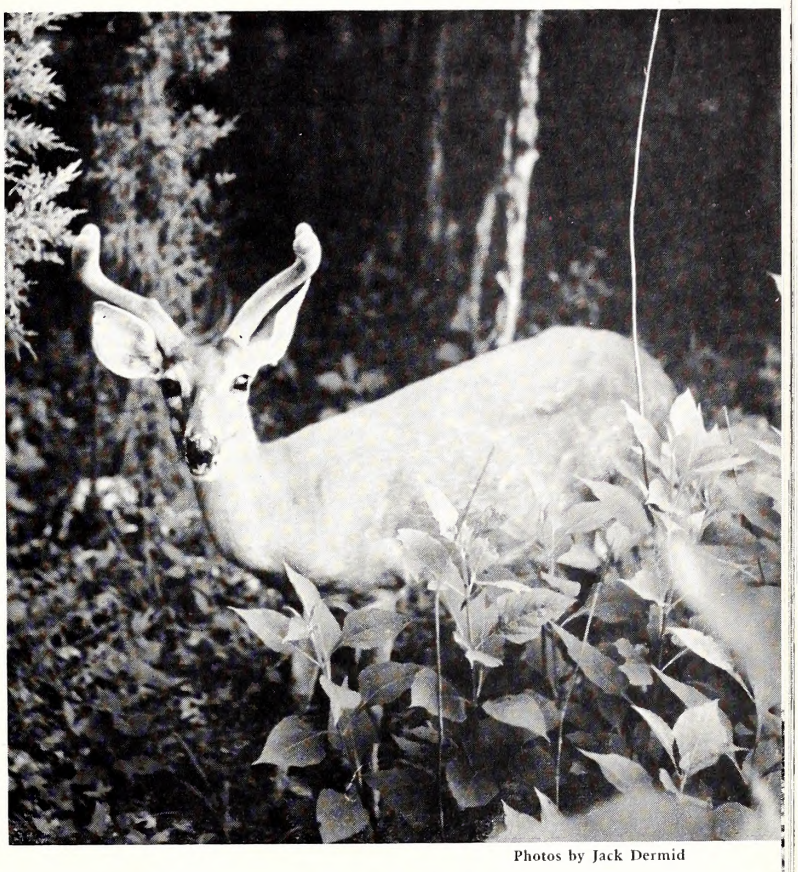
Sandhills Field Trials Set for March 6

The N. C. Field Trial Association has announced its March field trials on the fabulous Sandhills Wildlife Management Area course, beginning with on-the-grounds drawings March 5 for the amateur stakes starting March 6. On March 9 will be drawings for the open stakes with the trials beginning on the 10th and continuing until the heats are completed. The trial course boasts almost 50 coveys of native quail as a result of habitat development.

MARCH 21, 1958

Arbor Day

by Bill Hamnett



Photos by Jack Dermid

Our forests provide homes for wildlife, clean waters for streams and lakes, valuable timber products, and unlimited recreational values.

The idea of setting apart one day each year for planting trees came from a man who lived on the treeless plains of Nebraska. J. Sterling Morton, who later became United States Secretary of Agriculture, realizing what value, beauty, and comfort trees would add to the barren spaces of his state, persuaded the authorities of Nebraska to proclaim the first Arbor Day, April 22, 1872. The plan won general favor, and more than a million trees were planted in Nebraska that first Arbor Day.

Here in North Carolina, Arbor Day is the first Friday following the 15th of March, which this year will be March 21. In principle, this is a day dedicated to individual understanding and attention being given to trees which contribute much to the support of the economy of our State.

A tree is one of the most useful creations in Nature. We, through the years, have made use of trees in many ways. There is today over 9,000 products sold on the market which originally were some part of a tree—from medicine to furniture; from firewood to telephone poles; from food to clothing.

The observance of Arbor Day—by the planting of a dogwood or other desirable species in the schoolyard—is a good way to emphasize the importance of trees to youngsters.

These, with the many others, mean that trees are important to us, and what we do with this resource will greatly affect our way of life.

The forests of North Carolina are important to us in other ways too. The most important product of our forest land is water. Our well forested lands hold water to be gradually released into our streams and rivers throughout the year. Timber products, such as lumber, fuel, posts, poles, and wood pulp have made us a leader in the South, and we are now recognized as the furniture manufacturing center of the country. Our forests are the home of many deer, bear, wild boar, grouse and wild turkey hunted by the sportsmen of our State. The lakes and streams are visited by thousands of fishermen every year. Since more and more people are interested in outdoor recreation such as camping, hiking, boating, and nature study our forests are apt to be overrun by humans.

This last point will cause some concern and raise questions of limitations. After all, the three main causes of forest fires are men, women, and children, and this we must guard against. It stands to reason that a forest fire destroys more than the trees it burns. Everything looses in proportion to the burn.

It is an urgent plea and a sincere desire that throughout North Carolina every public school, civic club, youth organization, and all other meeting groups will devote some time on March 21 to tell others about this dedicated day and to challenge them to do all in their power to "Keep North Carolina Green and America Beautiful".

THIS IS THE

Forest Primeval

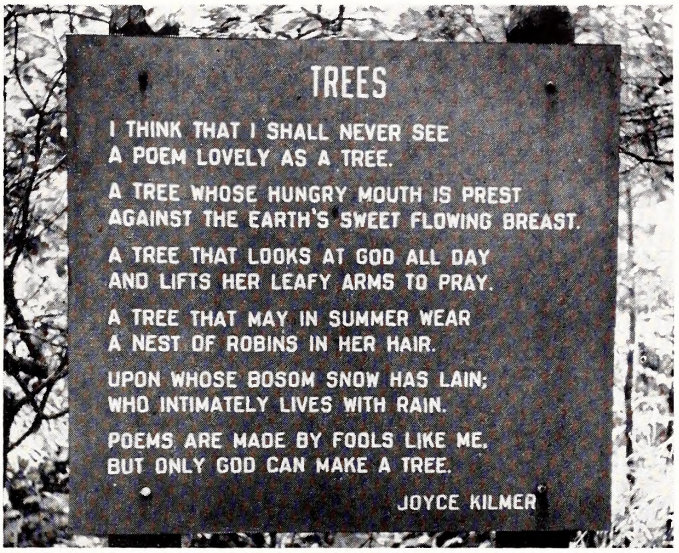
Photo Feature by Jack Dermid

Fourteen miles west of Robbinsville in a high basin between
aoe Lead and Horse Cove Ridge lies the Joyce Kilmer Me-
orial Forest, a 3800-acre green wonderland of giant tulip-
es and hemlock, rhododendron tangles, and moss-covered
ulders. It is virgin forest, forest primeval, a preserved rem-
nt of the vast hardwood forest that clothed our mountains
fore Columbus discovered America.

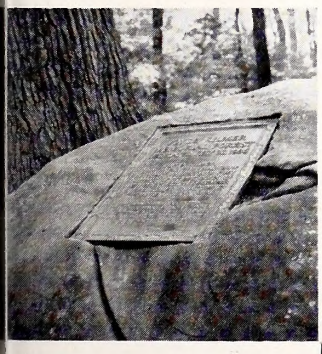
Few examples of virgin timberland remain in the eastern
nited States, and none are more impressive than the Joyce
lmer tract. To wander through the shaded aisles, beneath the
ried canopy that filters the sunlight into golden shafts
to become a part of timeless and primitive nature. Here
e tinkle of the junco's song is heard above the rushing waters
Little Santeetlah creek, and deer, bear, and European wild
ar make their home among the shadows.

It is particularly appropriate that this ageless stand of trees
s dedicated as a living memorial to Joyce Kilmer, an Ameri-
n poet who expressed his love for the beautiful and simple
ngs of nature in verse. The memorial was initiated by the
zeman Bulger Post of the Veterans of Foreign Wars and
ected by the United States Forest Service. It was dedicated
July 30, 1936—public land to be maintained forever in its
imitive and natural state for the enjoyment of all people.

The Joyce Kilmer Memorial Forest is a part of the Nantahala
ational Forest and the Santeetlah Wildlife Management Area.
is easily accessible, and a Forest Service campground is main-
ned near the entrance. A visit will be a long-remembered
tdoor experience.

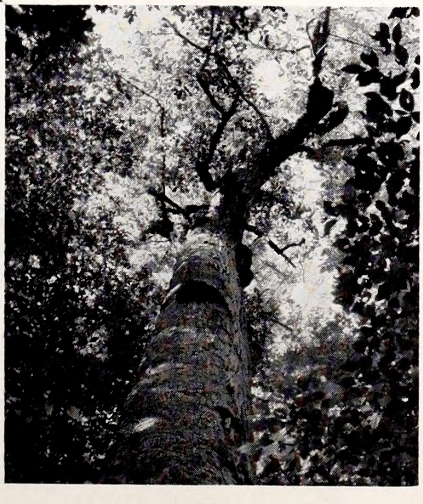


The unforgettable words of "Trees" appear on a Forest Service sign along the trail to Poplar Cove. Beginning at the parking lot, the trail makes a big loop past the memorial plaque.



Joyce Kilmer, 165th Infantry, Rainbow Division Soldier and Poet. Author of "Trees." Born in New Brunswick, N. J., December 6, 1886, killed in action in France, July 30, 1918.

The singing waters of Little Santeetlah creek pour from the depths of the forest. Here brook trout lurk beneath overhanging rhododendron.



**tuliptrees thrust their
ns above lesser trees, sky-
ers for squirrels to romp in.**

**ps away from the
the biggest trees.
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species. The Joyce
is a mixed stand of
so containing hem-
camore, basswood,
ny other varieties.**

SCHOOL MUSEUM Part VI

By Jim Lee

When the museum preparator draws the curtain from the front of a new exhibit, the result that the public sees is the culmination of a long chain of events. Someone, and not necessarily the same person in each step, has planned every aspect of the exhibit. The result shows how much planning has been done, and reflects the hours spent in preparation of the material.

Let's review the steps that come before the final assembly of each part of the exhibit—these steps are comparable to the assembly of a finished machine or a work of art.

The theme of the exhibit is selected. A story is to be told, and the elements of the exhibit are designed to tell that story. If there is no theme, and no story to be told, then the assembled pieces make up a confusing hodge-podge of unrelated objects.

The materials to be used are selected, based upon the theme. If some are not on hand, plans are made to secure them or suitable substitutes. We look through the material available, and select the most important and the most presentable.

Preparation of the material comes next. Specimens are cleaned and made ready for display. Fresh materials that have been gathered to supplement items on hand are preserved and final identification of doubtful specimens is made.

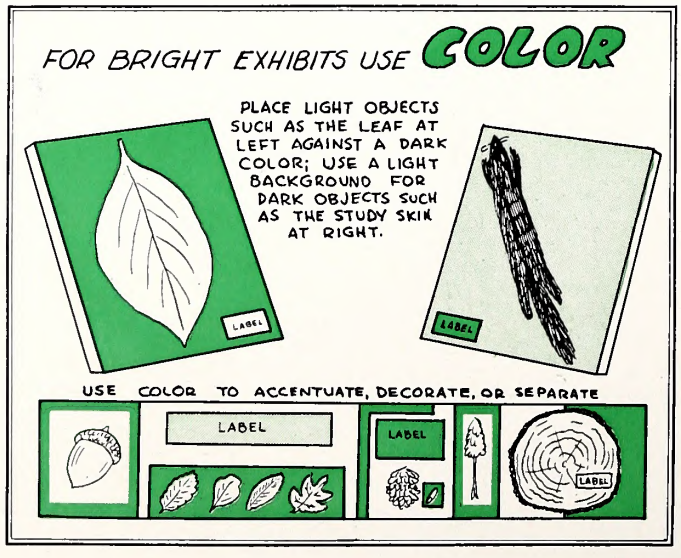
Labels are prepared in the form of rough drafts. References are checked to select the information that best carries out the theme, and the relationship between one article and another is set forth in the label.

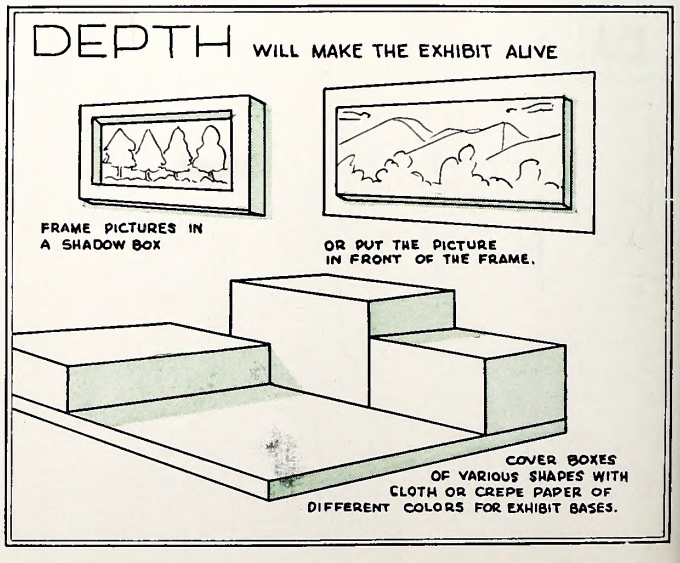
The cases and wall space available for the exhibit are examined, cleaned, and repainted as necessary. The space is then allocated to sub-units of the exhibits, so that we know what goes where. Each case becomes a paragraph in the short story that we want to tell, and the individual specimens become sentences in the paragraphs.

Now we are ready to actually put the exhibit together. The arrangement of the materials in the case is a matter of individual taste, but certain general rules apply.

The use of color to set individual articles apart provides the preparator with a tool as valuable to him as the pointer is to the lecturer at the blackboard. A light-colored panel behind a dark study skin will center the eye on the skin. In an exhibit on trees, a leaf silhouette cut from light green paper is emphasized when the light silhouette is mounted on a sheet of dark green cardboard.

Lighting itself can be used to add emphasis. A brilliantly lit case in a room with low general lighting draws the visitor to the light just as a candle draws moths. The smoothness of a sample of furniture wood is enhanced by soft overall lighting, while the rough texture of a snake's skin or the intricate design on a fragment of pottery is highlighted by the use of harsh spotlights. Light falling on the foreground objects separates them from the





background to center the interest of the visitor on the display; where the background is an important part of the exhibit it should be evenly lit.

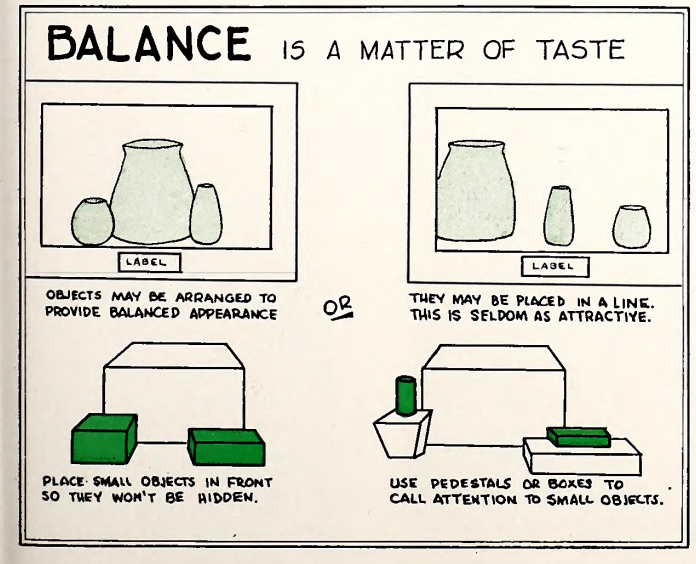
Related to lighting is depth. Even if the case is only a couple of inches deep, a feeling of three dimensions can be added by separating the exhibit material from the background. Wood or cardboard blocks hidden behind the objects can accomplish this, or the article can be mounted on a block of insulation board covered with burlap. Labels can be placed on composition board. Photographs or pictures cut from magazines can be glued to thin composition board or cardboard trimmed to the size of the picture. Photographs or drawings can be framed with matte board, which can be separated from the illustration by a balsa wood frame. The picture can be an inch behind the frame, or an inch in front of it. In larger cases, the article may be placed on a cigar box covered with burlap, or may be suspended in the air by wires or thread.

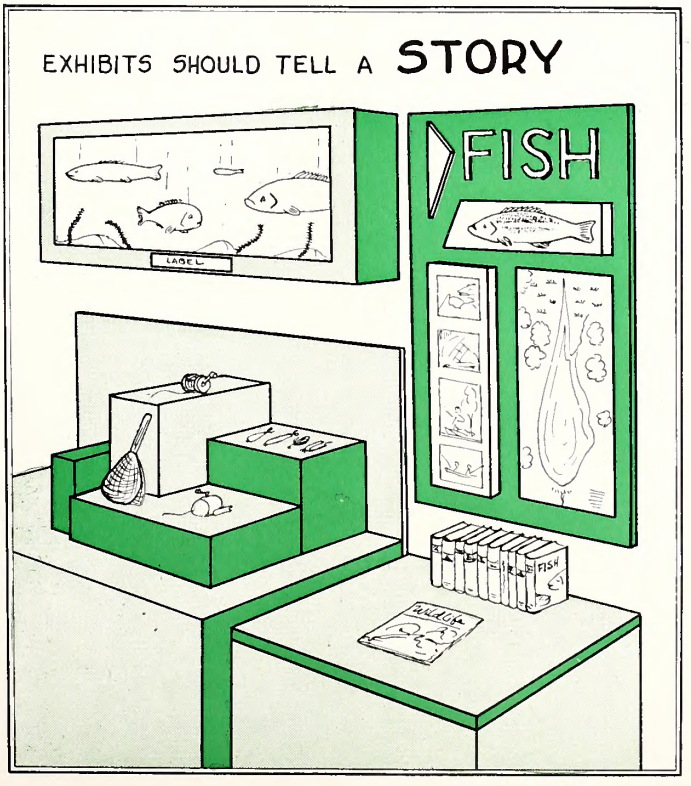
Balance is important. A symetrical arrangement may be used, or the objects may be arranged in a line to carry the eye to the most important feature. Larger articles are usually placed toward the rear of the case so that they will not obscure or overshadow smaller but still important objects. Balance may be aided by the use of blocks in a step-like arrangement, or a sweeping curve may be constructed of cardboard or wood. It's very much a matter of taste, however, and no two people would arrive at the same arrangement. The important thing is to lead the visitor's eye to the center of interest, and how this is accomplished is up to you.

The background should serve to enhance the exhibit. Bare painted sides and bottoms of cases are not distracting, but do little to carry out the theme of the exhibit. Fabrics with textures and designs that harmonize with the exhibit allow room for originality and help create an atmosphere. Burlap, or monk's cloth, is inexpensive and has a rough texture that contrasts with the smoothness of labels and mounts for objects. A tanned deer hide might be found to place on the bottom of a case of Indian artifacts. A collection of animals from the sea can be placed on an old net, complete with barnacle-covered cork floats. A collection of rough-textured rocks and minerals becomes more interesting when placed on a smooth glossy fabric such as rayon. A collection of gem stones suggests luxury when placed on a piece of black velvet.

Odd corners or sides of the exhibit help tell our story when symbolic objects occupy waste space. A butterfly exhibit can be decorated with an insect net, a pair of tweezers, a collecting bottle, some blank labels, and perhaps a pinning board with a butterfly on it. A mineral exhibit begs for attention when a battered rock hammer beside a crumpled knapsack suggests the fun of collecting. A collection of marine animals and shells found on the beach is more real when a few stalks of sea oats are leaned against the back of the case.

Although the finished exhibit should answer many questions, it should also stimulate many more. A display of books from the school library that will further the children's knowledge can be placed beside the exhibit. A mimeographed sheet listing reading references and perhaps a short explanation of how the exhibit was prepared can be placed in a convenient location. And by all means, somewhere in the exhibit, credit the children who helped prepare the exhibit by displaying their names, along with those of friends in the community who have contributed items to the exhibit, crediting them publicly with helping you.





KNOW YOUR

Wildlife Protectors

(LIST AS OF FEBRUARY 15, 1958)

RALEIGH OFFICE

James, Ben H., Chief	Route 5, Raleigh	Res. TE4-6064 - Off. Ext. 7191
Hazel, Robert B., Asst. Chief	1005 Southerlund Rd., Raleigh	Res. TE4-3240 - Off. Ext. 7191
Charles, Helen	7 South West St., Raleigh	Off. Ext. 7191
King, Nancy	318 Powell Dr., Raleigh	Off. Ext. 7191

DISTRICT NO. 1	ADDRESS	COUNTY	TELEPHONE
Wooten, Howard L., SUPV.	Rt. 2, Box 307, Elizabeth City	Pasquotank	4725
Earley, J. O., Jr.	209 Brinkley Ave., Plymouth	Washington	7041
Pierce, Lester	Rt. 3, Box 278, Elizabeth City	Pasquotank	5079
Barber, William Preston, Jr.	Box 35, Elizabeth City	Pasquotank	8106
Barnes, D. E.	Corapeake	Gates	2127
Bazemore, Henry L.	220 West St., Ahoskie	Hertford	3079
Cahoon, James L.	Fairfield	Hyde	None
Cohoon, Horace A.	61 Front St., Hertford	Perquimans	None
Dail, Harold R.	Gen. Del., Robersonville	Martin	4020
Evans, Robert E.	Edenton	Chowan	122 Centre Hill
Everette, Lindsay	Box 122, Windsor	Bertie	5206
Forbes, J. H.	Poplar Branch	Currituck	Coinjock 3989
McPherson, Harry	Camden	Camden	None
Mosley, E. L.	Box 141, Columbia	Tyrrell	2071
Register, Wade A.	P. O. Box 11, Kill Devil Hills	Dare	2706
Sawyer, Walter S.	Mamie	Currituck	None
Terry, J. T.	Plymouth	Washington	2081
White, William S.	Manns Harbor	Dare	364W1

DISTRICT NO. 2

Watson, Raymond A., SUPV.	Rt. 2, New Bern	Craven	9146
Overton, C. J., Jr.	Aurora	Beaufort	WEbster 8-3511
Teseneer, C. M., Jr.	Wallace	Duplin	ATwater 5-3332
Barkley, Dennis E., Jr.	Box 481, Oriental	Pamlico	431
Bell, D. B.	Box 972, Kinston	Lenoir	6572
Edwards, John O.	Kenansville	Duplin	2252
Fraley, F. L.	Box 744, Washington	Beaufort	None
Hill, Melvin E.	Box 75, Hookerton	Greene	2048
Hudson, George N.	Box 247, Bayboro	Pamlico	2921
Jarrett, E. R.	Rt. 4, Box 370, New Bern	Craven	9449
Koonce, Lonnie	Richlands	Onslow	3326
Metters, P. S.	Box 154, Jacksonville	Onslow	4450
Parker, Carlton R.	Pollocksville	Jones	6-2591
Rhyne, W. T.	Gen. Del., Morehead City	Carteret	6-5001
Sheppard, Preston	Rt. 1, Box 171, New Bern	Craven	2504
Spain, L. C.	P. O. Box 75, Aurora	Beaufort	WEbster 8-3011
Teel, J. O.	Rt. 6, Box 340, Greenville	Pitt	6324
Webster, Robert G., Jr.	Box 396, Burgaw	Pender	65

DISTRICT NO. 3

Woolard, C. N., SUPV.	Box 562, Wilson	Wilson	3592
Johnson, S. R.	Greenwood Ave., Englewood, Rocky Mount	Nash	24745
Spain, C. B., Jr.	Gen. Del., Nashville	Nash	5191

DISTRICT NO. 3 (continued)

Boone, Charles A.	Box 354, Spring Hope	Nash	2151 (message)
Crews, Norfleet G., III	Rt. 3, Box 55, Henderson	Vance	5733
Howell, A. G.	Rt. 5, Goldsboro	Wayne	2697W3
Hughes, N. B.	Jackson	Northampton	2106
Kennedy, J. R. (Trainee)	Gen. Del., Weldon	Halifax	None
King, J. Harold	815 South 2nd St., Smithfield	Johnston	3295
LaRue, Keith D.	Box 254, Scotland Neck	Halifax	5107
Perry, Bob D.	Rt. 2, Wake Forest	Wake	EXport 5-2305
Pridgen, Alton D.	Rt. 3, Box 172, Warrenton	Warren	52-58-Warrenton
Rawls, Douglas L.	806 St. David St., Tarboro	Edgecombe	4588
Walls, Elmo L., Jr.	204 N. Pine St., Wilson	Wilson	Res. 4703 - Bus. 2376
Wilson, P. B.	Bunn	Franklin	4189 R. I. Mitchell

DISTRICT NO. 4

Caine, E. W., SUPV.	Box 924, Lumberton	Robeson	5423
Boswell, B. L.	Bolton	Columbus	GL2-3440
Chadwick, Oscar	Rt. 3, Fayetteville	Cumberland	3-2432
Bordeaux, Amos	Box 77, Ingold	Sampson	250-Garland
Bostick, Leroy F.	Rt. 1, Box 36, Laurel Hill	Scotland	CRestview 6-3607
Bowmer, H. T., Sr.	Southport	Brunswick	GL7-4091
Coleman, James H.	Bolton	Columbus	GL2-3230
Culbreth, Sam	Elizabethtown	Bladen	3255
Forbis, Gilmer S.	Box 3231, Fayetteville	Cumberland	2-5427
Gause, David L.	Box 235, Shallotte	Brunswick	1212 Shallotte
Gooden, Walton E.	Box 109, Red Springs	Robeson	None
Goodwin, James H.	Box 205, Clinton	Sampson	4724
McLean, H. R.	106 Reaves St., Raeford	Hoke	2283
Musselwhite, J. L.	307 Virginia Ave., Wilmington	New Hanover	ROger 3-5695
Sellers, Robert K.	Box 1001, Lumberton	Robeson	4319
Sigmon, Troy M.	Box 125, Chadbourn	Columbus	4671
Tripp, C. H.	Newton Grove	Harnett	None
Williams, Thomas L.	Box 355, Bladenboro	Bladen	None

DISTRICT NO. 5

Rollins, Tom L., SUPV.	Box 907, Sanford	Lee	SP-3-4452
Jones, A. E.	Siler City	Chatham	SHerwood 2-3358
Webb, Charlie E.	Rt. 1, Browns Summit	Guilford	MOnticello 3355
Allen, Raymond Y.	Leasburg	Caswell	7363
Daniels, Thomas M.	Pittsboro	Chatham	KIngswood 2-3153
Davis, John K.	1124 Durham Rd., Roxboro	Person	8-1841
Godwin, A. C.	Rt. 4, Sanford	Lee	SPring 4-3415
Lamphere, Paul D.	Rt. 2, Box 146A, Trinity	Randolph	4975
Logan, Robert F.	Box 1084, Chapel Hill	Orange	9-8534
Neal, A. D.	Rt. 1, Stokesdale	Rockingham	5056-Madison
Perry, Vance M.	Box 344, Graham	Alamance	6-2749
Savage, J. D.	108 Rectory St., Oxford	Granville	3848
Ward, Marvin L.	Rt. 1, Morrisville	Durham	6-5732 - Durham
Wiles, R. L.	Rt. 6, Box 278, Greensboro	Guilford	5-3958

DISTRICT NO. 6

Wade, R. Frank, SUPV.	Box 802, Albemarle	Stanly	YUkon 2-4053
Overcash, Ray A.	Box 326, Southern Pines	Moore	Aberdeen: WIndsor 4-25
Wheless, Jimmie J.	112 Oak Ave., Lexington	Davidson	CHestnut 3-2433
Armfield, S. M.	Rt. 1, Marshville	Union	24-R
Brown, John O.	Rt. 1, Box 493 B, Charlotte	Mecklenburg	ED 3-9146
Buck, Leroy L.	P.O. Box 1372, Concord	Cabarrus	ST 2-0275
Greene, James B.	c/o Box 802, Albemarle	Moore	None

DISTRICT NO. 6 (continued)

Griffin, Ralph R.	318 N. Washington Ave., Wadesboro	Anson	MYrtle 4-3076
Lineberry, L. L.	Box 895, Rockingham	Richmond	5141
Milstead, Robert E., Jr.	Box 175, China Grove	Rowan	ULrick 7-7747
Poole, Cleat E.	Box 568, Troy	Montgomery	5911
Sides, Harold E.	Rt. 1, Box 66, New London	Stanly	YU2-1361
Wright, Robert W.	1232 Fairview Drive, Lexington	Davidson	3-2320

DISTRICT NO. 7

Edmisten, Walter F., SUPV.	Boone	Watauga	AMherst 4-8644
Beamer, George B.	Rt. 3, Mount Airy	Surry	1751-J
Woodruff, T. B.	Rt. 2, Mocksville	Davie	1610-J
Aldridge, Billy R.	Box 325, N. Wilkesboro	Wilkes	573-M
Ball, Vernon, F.	Rt. 2, Box 280, Elkin	Surry	1645-M
Barr, George A.	King	Stokes	YU3-8475
Bryan, DeWitt T.	Glade Valley	Alleghany	
Forbes, Miles E.	1404 Reid St., Statesville	Iredell	3750
Jones, W. W.	2830 Patterson Ave., Winston-Salem	Forsyth	3-2091
Koontz, Roland H.	Jefferson	Ashe	4386
Link, Vance M. (Trainee)	305 Maple Dr., Lenoir	Alexander	None
Mackie, Frank W.	Box 176, Yadkinville	Yadkin	3161
Osborne, Tommie F.	Boone	Watauga	AMherst 4-3809
Phipps, Walter Clifton	Box 81, Mocksville	Davie	1623-M
Reese, Frank B.	Rt. 2, Taylorville	Alexander	2351

DISTRICT NO. 8

Curtis, Donald E., SUPV.	P. O. Box 814, Morganton	Burke	HEmlock 7-1759
Eaker, J. L.	306 Sinclair Ave., Marion	McDowell	7061
Fairchild, John T.	Box 43, Conover	Catawba	INgersoll 4-1880
Allran, Cecil E.	610 N. Grove St., Lincolnton	Lincoln	REgent 5-8503
Beatty, James N.	241 S. Main St., Marion	McDowell	6953
Burgess, Russell	Rt. 1, Spruce Pine	Mitchell	POplar 5-4335
Carpenter, Wallace M.	Three Mile	Avery	POplar 5-2568
Crawley, William L.	c/o Box 814, Morganton	Catawba	None
Higgins, Milton B.	Burnsville	Yancey	MUtual 2-2549
Lindsay, Cecil	Box 545, Lenoir	Caldwell	PLaza 4-6967
McLean, J. D.	407 Oakdale Ave., Gastonia	Gaston	UN 5-8132
Peeler, William B.	Rt. 1, Mooresboro	Rutherford	Ellenboro GL3-7351
Price, Jesse O.	Box 1195, Shelby	Cleveland	HUnley 7-7796
Rhyne, Robin H.	Rt. 5, Box 11, Morganton	Burke	HE 7-4734

DISTRICT NO. 9

Robertson, Hugh A., SUPV.	Route 3, Waynesville	Haywood	GLendale 6-9292
Martin, Harrison J.	Rt. 2, Hayesville	Clay	289J4
Ray, Avon O.	Box 2365, Asheville	Buncombe	ALpine 2-4710
Beard, Roy Wayne	Box 2554, Asheville	Buncombe	ALpine 2-5362
Boring, Charles H.	P. O. Box 618, Franklin	Macon	383J
Crain, Wade	Rt. 1, Bryson City	Swain	4586
Dalrymple, Arnold R.	Murphy	Cherokee	241-J
Danner, Wiley W.	Box 1005, Sylva	Jackson	JUstice 6-4203
Davis, Thomas E. (Trainee)	Gen. Del., Robbinsville	Graham	GRanite 9-3551
Gant, J. W.	c/o Rt. 2, Waynesville	Haywood	None
Jackson, Clyde L.	Gen. Del., Hendersonville	Henderson	9920
Martin, Jimmie R.	Box 86, Hayesville	Clay	2046
Pack, Arthur	Rt. 1, Tryon	Polk	495 (Police Dept.)
Ramsey, Raymond C.	Rt. 2, Marshall	Madison	Marshall, Tel. 2401)
Renegar, James D.	Box 242, Brevard	Transylvania	TUrner 2-2672

PROTECTOR OF THE MONTH

David L. Gause

Mr. David L. Gause, Wildlife Protector for Brunswick County, was born in Bladen County on November 1, 1929. The son of Mr. and Mrs. D. R. Gause of Elizabethtown, he attended school in Elizabethtown, North Carolina, and served in the Army for two years. Before attending the Wildlife Protectors' Training School in September, 1955, Mr. Gause was in the pulpwood business. He was employed by the North Carolina Wildlife Resources Commission in October, 1955.

Mr. Gause is married to the former Virginia Porter of Tabor City, North Carolina, and they have one son, Michael Leon. They attend the Baptist Church in Shallotte, North Carolina, where they reside.

ENFORCEMENT RECORD FOR JANUARY

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of January, 1958.

Persons checked	31,576
Total prosecutions	416
Total convictions	408
Total cases not guilty	5
Total cases nol prossed	3
Total fines collected	$3,799.89
Total costs collected	$2,953.65

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

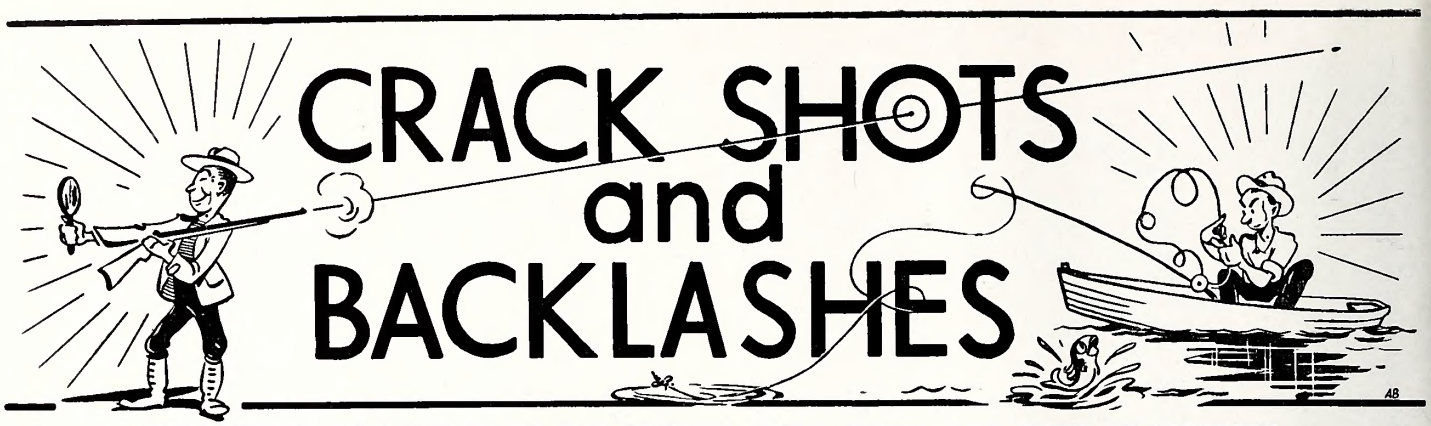
Question: Is it a violation of the law to take fish by grabbling?

Answer: It shall be unlawful to take or attempt to take non-game fish with the hands (grabbling) unless the person so doing has a valid fishing license in his possession. It shall be unlawful to take or attempt to take game fish by this method at any time, and it shall be unlawful to grabble at any time in Designated Public Mountain Trout Waters.

SNOW GEESE STAY LATE

The snow geese stayed late this year along the Carolina coast, with cold weather holding the huge and rare birds on their wintering grounds for weeks after their normal departure time for the Arctic Circle. Photographed here from the Commission's patrol plane, this is part of the 40,000 birds that stayed several days at Knott's Island.

Photo by Jim Lee



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

March 16 to 22 has been proclaimed National Wildlife Week. The theme for this year's observance is "Protect Our Public Lands." This theme was decided on in view of the inroads being made by both private and public interests on lands set aside for wildlife conservation. They include national wildlife refuges, national parks and wilderness areas.

There is another job of protecting to be done, and it hits us right here in North Carolina. Following is a news release from the National Audubon Society:

The National Audubon Society has urgently recommended that the Department of Agriculture stop all insect control programs in which highly toxic chemicals are broadcast unless incontrovertible evidence becomes available that no serious damage to human and wildlife resources will result.

The Society specifically requested the Secretary of Agriculture to stop the proposed control program for the imported fire ant on some 20 million acres in nine southern states. The program is already underway.

"You really have to get up early to catch these fish."

At the same time, the Society warned the general public that all use of highly toxic modern insecticides, fungicides and so-called pesticides by governmental agencies, farmers, and other land owners, including gardeners, carries with it a much higher potential of harm to human beings and wildlife than is generally recognized.

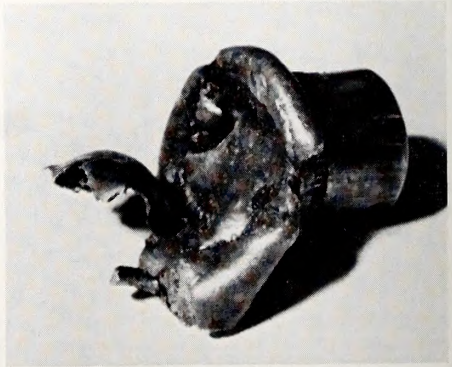
"Insecticide hazards may well rank in seriousness of adverse effects with the dangers of radioactive fallout," said Mr. John H. Baker, President of the Society. "The use of toxic chemicals for the purpose of protecting agricultural and forest crops has now skyrocketed to the point where cumulative secondary poisoning of human beings and wildlife, which already exists to some extent, may become catastrophic."

SIGN OF THE MONTH

Mr. Baker cited tests conducted by the U. S. Fish and Wildlife Service, which reveal that in the second generation of exposure to insecticides in their diet, birds invariably became incapable of reproduction. "When you realize that these poisons may well have similar cumulative effect on the human system, it is unthinkable that widespread programs be undertaken in the absence of proof that there is no risk of such result," said Mr. Baker.

"In any case, the burden of proof should rest on the agency employing the toxic substance, and not on the individual citizen," he said. "This proof should be available for public evaluation long before mass-spraying programs are undertaken. To make such tests concurrently with a chemical spraying operation is obviously highly unsatisfactory, for the damage will have been done by the time the tests are complete."

With specific reference to the fire ant program, the Society stated that the chemicals proposed for use are far too lethal for widespread aerial or ground applications. According to the U. S. Department of Agriculture, dieldrin, one of the most deadly of modern insecticides, is to be applied at the rate of two pounds per acre. In some areas the dosage may reach



Biologist Rex L. Bird cut into a lump on a deer being checked out at Pisgah's Davidson River checking station last November to find this .30 cal. slug. The year-or-more-old wound was completely healed and covered with hair.

Photo by Luther Partin

Attention youngsters who live on tobacco farms! Have you checked to see if the doors of your tobacco curing burners are open so that bluebirds that enter the flues can escape? Or better, why not screen the tops of the flues with hardware cloth? The photographer found bluebirds, sparrows, and wrens—all dead—in this burner in Wake county.

four pounds to the acre, the Department says.

Tests by the U. S. Fish and Wildlife Service show that one pound of dieldrin has sufficient toxicity to kill approximately four million quail chicks. The California Department of Fish and Game reports that only 1½ pounds of dieldrin per acre caused the death of pheasants, quail, gophers, snakes, jack rabbits, dogs, chickens, geese and turkeys.

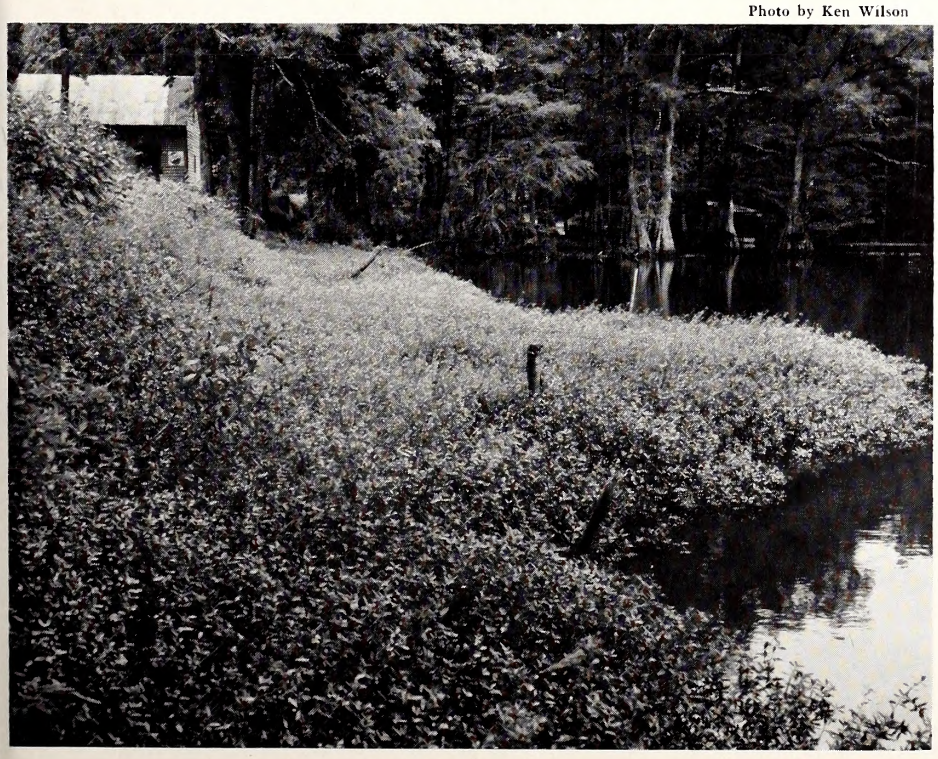
In calling attention to the fact that some, if not most, of the chemicals would be applied by aircraft, the Society stated experience shows that it is impossible to apply chemicals from the air without some multiple doses and complete misses.

"The National Audubon Society recognizes the seriousness of the fire ant problem," said Mr. Baker. "We can well understand that citizens of the affected states are eager to have this troublesome insect controlled. But we doubt very much that they would be eager to have their countryside doused with these lethal chemicals if they knew the extent to which they, their livestock, and those that consume the crops produced in the area may suffer."

Although fire ants have invaded North Carolina, the incidence has been extremely localized, and in all cases of known colonies these have been destroyed. At the present writing, there seems to be no need whatever for a blanket spraying for fire ant control.

A new infestation of alligator weed, that terrible, hard-to-eradicate aquatic pest, is on the move at Harris Mill Pond near Winton. According to E. O. Beal, professor of botany at State College, this growth was only 15 feet in diameter when discovered in the fall of 1956. The photo, taken in October, 1957, shows its rapid rate of spread. Alligator weed should be completely destroyed before it has the opportunity to become established.

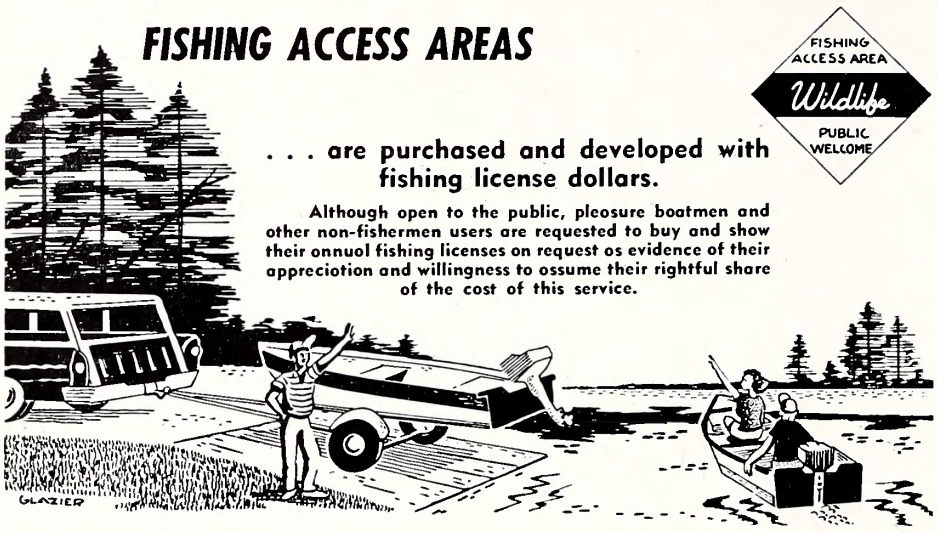
Photo by Ken Wilson



The Greensboro Junior Museum is now open daily except Monday under the direction of Walter Marinetti.

"Dear Sir:

"I was just reading an article in the Greensboro Daily News by Mr. Jim Wommack who writes "Outdoors in Carolina." This article concerned the sale of rabbits. I for one agree with Mr. Wommack. I think it should be unlawful to sell rabbits one time to say nothing of resale. I also think it should be unlawful to box trap them. There are more rabbits taken in box traps and sold than all hunters combined kill, and there is no law or season, whatsoever, on box trapping rabbits. I am a Beagler and there are a lot of others in this county, and if there is not something done in the very near future we will not have any sport. We Beaglers all buy licenses and I think our sport should be protected like the hunters of other game. Take the quail hunter for instance.



It is unlawful to trap or sell quail and I think we should have the same protection on rabbits. They are already diminishing fast and I think it is a shame the way they are being slaughtered and sold. The rabbit deserves better protection. How about all of us trying very hard and see if we can get something done about this.

Yours very truly,
E. L. Jarrett,
Haw River, N. C."

Several times legislation has been introduced to prohibit even a first-sale of rabbits. This proposed legislation has been defeated. In many localities rabbits damage agricultural crops, but there is nothing in the law to prevent farmers from disposing of pestiferous rabbits by trapping. It is the sale of such rabbits that most rabbit hunters object to.

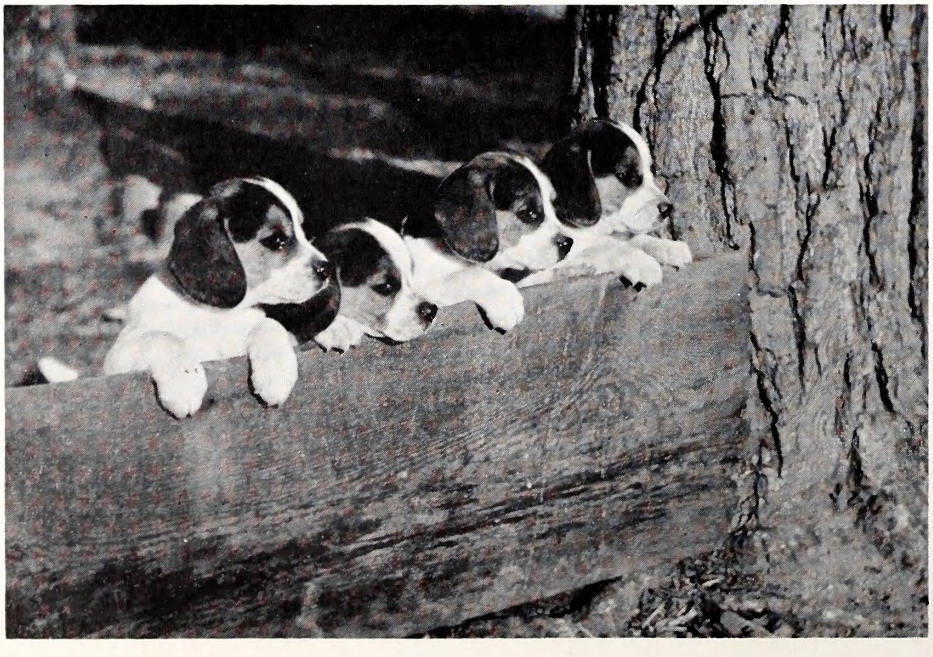
"Dear Sir:

"During the summer of 1957, my wife's parents came to visit us from Sweden. It was their first trip to America, and they were quite captivated by this country and especially by North Carolina.

"Three issues of WILDLIFE arrived while they were here, and my father-in-law read each issue from cover to cover as soon as the postman delivered it. He is quite a sportsman, and spends weeks each year in hunting and fishing in Northern Sweden.

This photograph of four cute beagle pups reminds us that another spring and summer will soon roll around—and that wildlife will be busy again raising their young. It makes good sense to see that our dog pens are in good repair, for even the nicest dog can destroy quail chicks and baby rabbits when on a free-hunting spree. The picture reminds us, too, that now is the time to get a new pup and to start his training for more enjoyable days afield next fall.

Photo by R. A. Eibling



"He took many fine pictures of North Carolina back with him to show to his friends, and a lot more memories, but I was too selfish to even offer my back issues of WILDLIFE IN NORTH CAROLINA.

"But his birthday is fast approaching, and that's where you come in: Is it possible for me to give him a subscription to WILDLIFE, and have you mail it to him in Sweden? If so, it would be one of the most appreciated presents we can possibly think of, and I know he will be proud to show it to everyone who will look, for it is certainly an excellent advertisement for this State!

"Please let me know if this request is possible, and if so, how much you need to cover mailing, etc.

Sincerely yours,
James G. Josserand,
Greensboro, N. C."

Glad to oblige. Same price, no extra postage necessary.—Ed.

We get some good ones from time to time, but this one tops (almost) good friend Lucretia Plymph:

"Dear Sirs:

Pleas send me free maintenance on wildlife.

With love
(Name withheld, for obvious reasons)
Douglass school
Lawton, Oklahoma"

Sorry, we have no maintenance shops. Pretty hard to repair wildlife when it gets out of order.

"Dear Sir:

"In your January issue I see a mention of a "Community Farm Game Development Group."

"For some time I've been interested in developing our farm near Morganton (Burke County), and last year planted 18 feed strips of bicolor there.

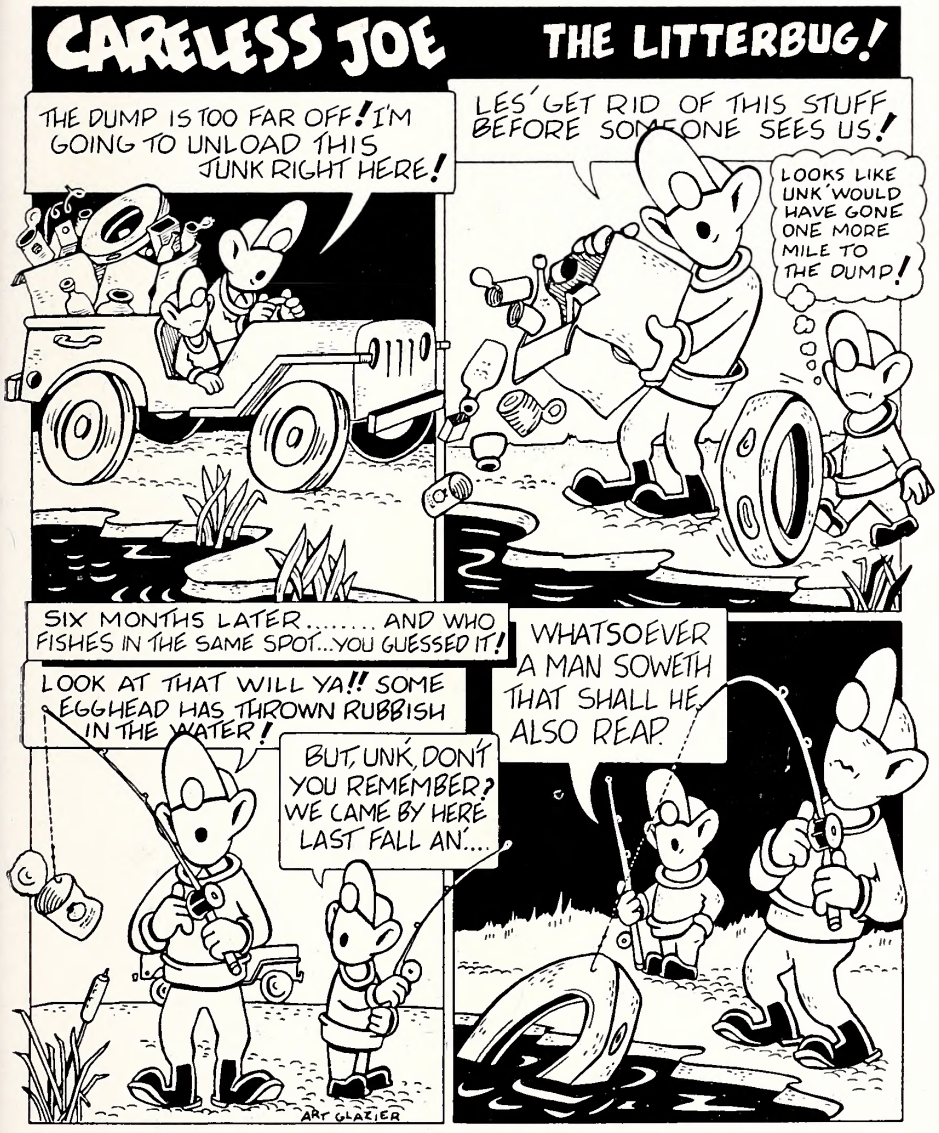
"Is there a group such as the one you mention anywhere near Morganton, and if so can they furnish me information as to the best way to proceed with the program? I'd like to plant 20 more feed strips this year, if conditions are right.

"Where can I get information as to the possibility of getting Federal or State help in the expense of carrying on this program? I see this kind of help mentioned in your magazine.

"Your good advice will be greatly appreciated.

Sincerely yours,
W. Clark Erwin,
Spartanburg, S. C."

"Community Farm Game Development Groups" are rather informally and voluntarily organized in several communities. The nearest to Morganton is in Yancy



County near Burnsville. Pages 8 through 11 of January WILDLIFE are devoted to giving help to landowners interested in developing for wildlife habitat.

Dear Mr. Amundson:

Recently educators and others interested in the operations of our schools and colleges have given some attention to the matter of over-emphasis on sports. They have some points—coaches being paid twice the salary of full professors, millions for stadiums and pennies for classrooms. They point out that only a handful of students actually participate in these sports, and the skills gained by these few participants is of little or no value in later life. Defenders of big-time collegiate sports, and their counterparts in the high schools, claim that these sports teach sportsmanship, physical fitness, and through scholarships enable students to attend who would otherwise have to go to work.

I have a suggestion that may be of interest to readers of WILDLIFE . . . a sport that everyone, young and old alike, could participate in; would cost very little for facilities; would teach teamwork and sportsmanship, and could provide scholarships where scholarships are needed. At the same time the expensive coaches and stadiums could be abandoned in favor of teachers and classrooms. My proposal is this: intercollegiate frog-gigging.

Frog-gigging teams, with specialist in gig-handling, flashlight-holding, and croak-listening, could be organized on even the smallest campus. Instead of a million for a football stadium, half a million for a baseball diamond, and a million for a basketball arena, a few hundred dollars could be spent for a frog-pond. Instead of lying idle most months of the year, the frog pond could also provide for fishing, boating, wading, and a tunnel of love, as well as ice-skating.

Scholarships, currently a problem in most collegiate conferences, could be given to outstanding high school frog-giggers on the basis of their ability to outwit the wily bullfrog. This would tend to make more scholarships available to farm youth, and less to the would-be college student who is just plain afraid to go to work.

Training tables, now an expensive item in athletic budgets, would feature fried, broiled, or baked frog legs. Any surplus of frog legs after a big meet could be frozen, fricasseed, given to the school cafeteria, or they might be donated to a nearby orphanage.

Self-help students could pay their way through college raising frogs on the school frog farm.

Team competition would be encouraged, especially if mixed doubles, as in tennis, became the vogue at coeducational institutions.

True sportsmanship would be displayed by the frog-giggers who pass up a yearling bullfrog in favor of the more difficult two-year-olds.

Frankly, I'd as soon have my son major in frog-gigging as in football—I think he'd have more fun. What do WILDLIFE readers think?

Yours sincerely,

Waldo Plopp,
Chapel Hill

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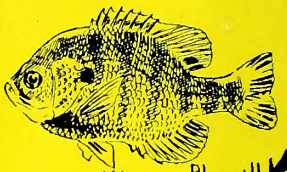
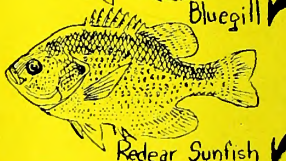


Bluegill ✓

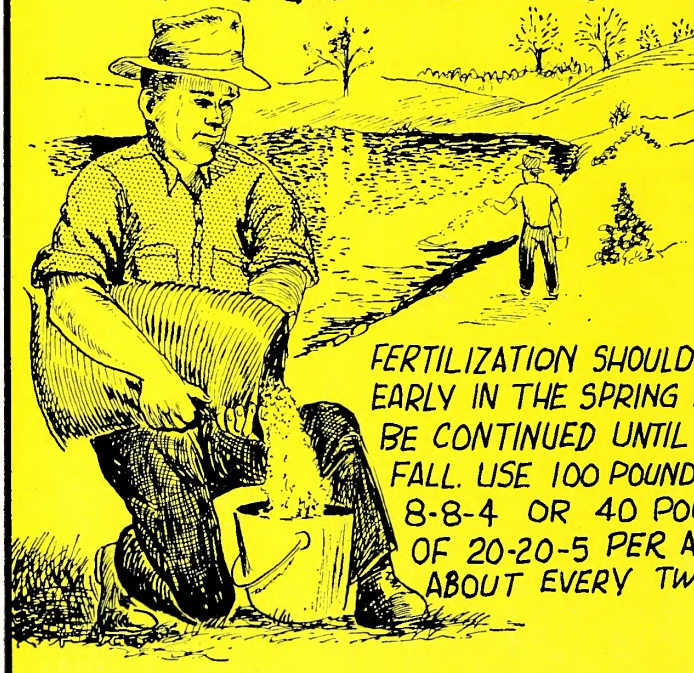


Redear Sunfish ✓

DO NOT STOCK THESE FISH X

Crappie X

Catfish X



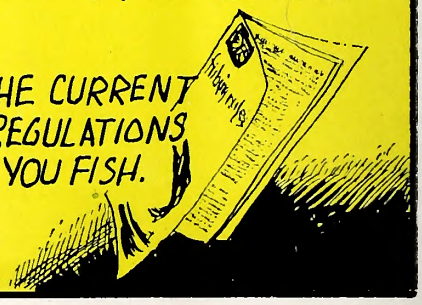
FERTILIZATION SHOULD BEGIN EARLY IN THE SPRING AND BE CONTINUED UNTIL LATE FALL. USE 100 POUNDS OF 8-8-4 OR 40 POUNDS OF 20-20-5 PER ACRE ABOUT EVERY TWO WEEKS.

YOU CAN OBTAIN FISH FREE OF CHARGE FOR YOUR PRIVATE POND FROM THE U.S. FISH & WILDLIFE SERVICE. SEE YOUR SOIL CONSERVATION SERVICE REPRESENTATIVE.

IF "WEEDS" OR "MOSS" TROUBLE YOU, TRY DRAWING THE POND DOWN SEVERAL FEET ABOUT NOVEMBER FIRST AND THEN FILL IT UP BY APRIL FIRST.

HERE'S THE PAYOFF! LIKE ANY OTHER CROP, FISH MUST BE HARVESTED.

CHECK THE CURRENT FISHING REGULATIONS BEFORE YOU FISH.



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Wildlife in north carolina

APRIL-1958

TEN CENTS

Photo by Jack Dermid

Mighty Leap

A baby wood duck leaps from an artificial nesting box (see COVER note). Wood ducks normally nest in hollow trees, but every year countless nesting sites are eliminated as the result of lumbering and timber stand improvement programs. Fortunately, the wood duck will nest in properly constructed homemade boxes. Why not provide housing for wood ducks at your farm pond? Free plans can be obtained by writing the Game Division, Wildlife Commission, Box 2919, Raleigh.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

It is a big day for the 24-hour-old wood duck on our April cover. Yesterday, along with 11 others, he struggled from an egg, using an "eggtooth" (white structure on tip of bill) to cut a door at the large end. Wet and exhausted, he tumbled into the dim interior of the nesting box.

All night, the hen wood duck brooded her new family, and now the time has come to abandon the nest. When all was safe, the hen fluttered from the nest emitting soft notes that stimulated the nestlings to follow. They climbed to the entrance and leaped (opposite page) into the outside world.

The photo was made by Jack Dermid at Dr. J. R. Hester's pond near Wendell.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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TILLERY LAKE

By Buford L. Tatum
Fisheries Investigator

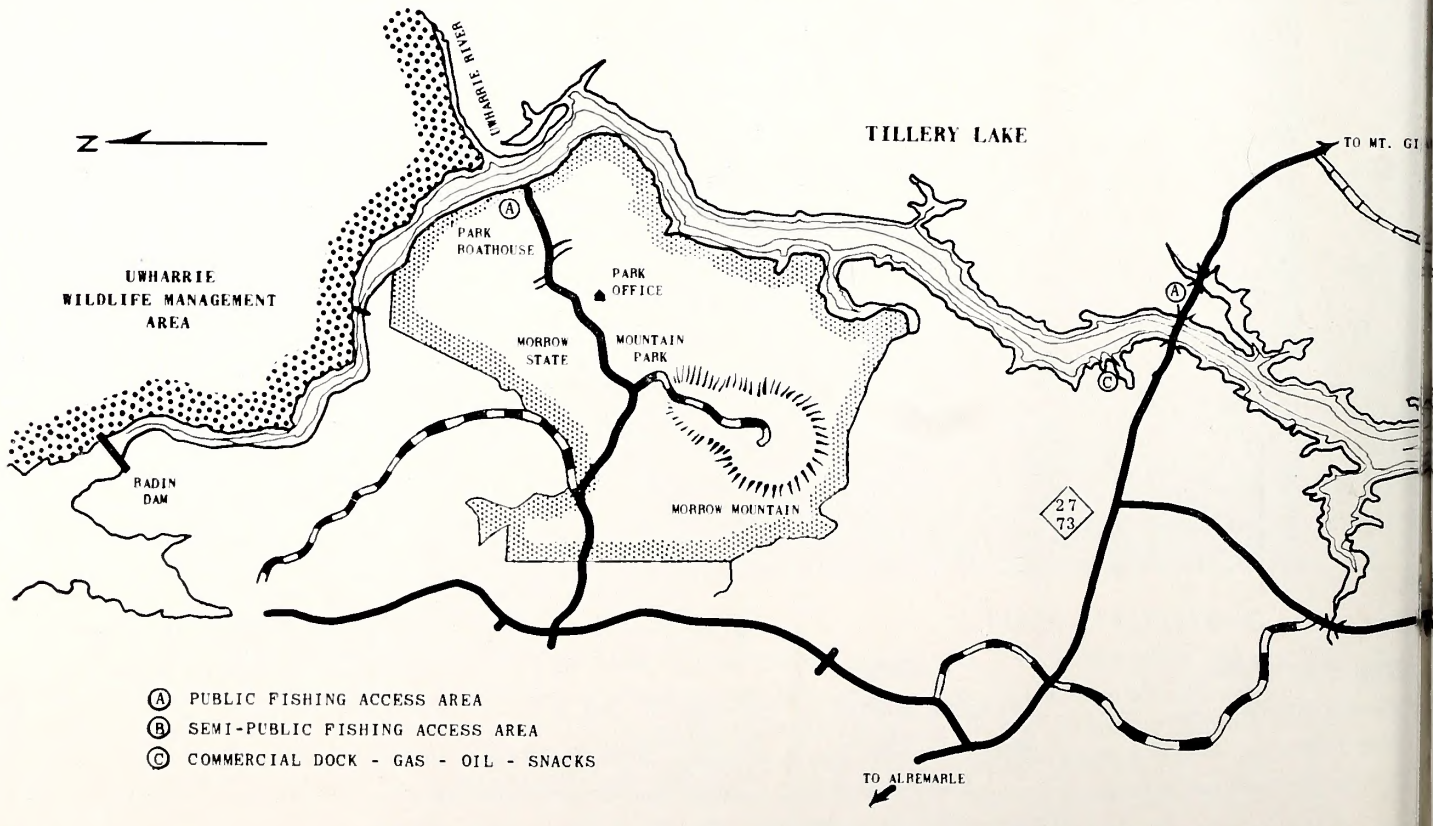
ONE of North Carolina's more popular piedmont power reservoirs is Lake Tillery on the Pee Dee River in Stanly and Montgomery Counties. Among the most beautiful lakes in the Tarheel State, Tillery is a vacation paradise lying in a valley of the ancient Uwharrie Mountains.

Wildlife abounds in the wooded hills and small fields surrounding the lake. This abundance of wildlife in such an inhabited and industrialized area of North Carolina is quite unusual and great credit must be given the people of this area for constant vigilance and assistance to wildlife. Tillery Lake has been set aside as a state waterfowl refuge with Morrow Mountain State Park located on the Stanly County side and the Uwharrie Wildlife Area on the Montgomery County side of the lake offering much of the needed habitat and protection for wildlife. This coupled with local land owners' food patches and habitat improvement have made Tillery Lake and the surrounding area a haven for wildlife. On a single outing along the shores of the lake it is possible to see deer, wild turkey, small game of many species and, in season, many species of waterfowl. It is truly a picturesque setting for a jumping fish on the end of a line.

History

Tillery Dam was built by the Carolina Power and Light Company in the late 1920's as a hydroelectric power reservoir. Originally known as Norwood Dam the name was changed in 1933 to Tillery in honor of the late Paul A. Tillery, former president of the Carolina Power and Light Company.

The lake now covers the boundary between the Yadkin and the Pee Dee River. Below the mouth of the Uwharrie River which enters the lake near the upper end, the stream is known as the Pee Dee; above the Uwharrie River the stream is known as the Yadkin. Tillery Lake covers 5,294 acres with a shoreline of 104 miles. The power company owns a contour around the lake and grants easements for certain recreational activities. Carolina Power and Light Company has maintained a very cooperative attitude in regard to the recreational possibilities of the lake. Based on recom-



THIS IS THE FIRST OF A SERIES OF ARTICLES ON IMPORTANT FISHING LAKES IN NORTH CAROLINA

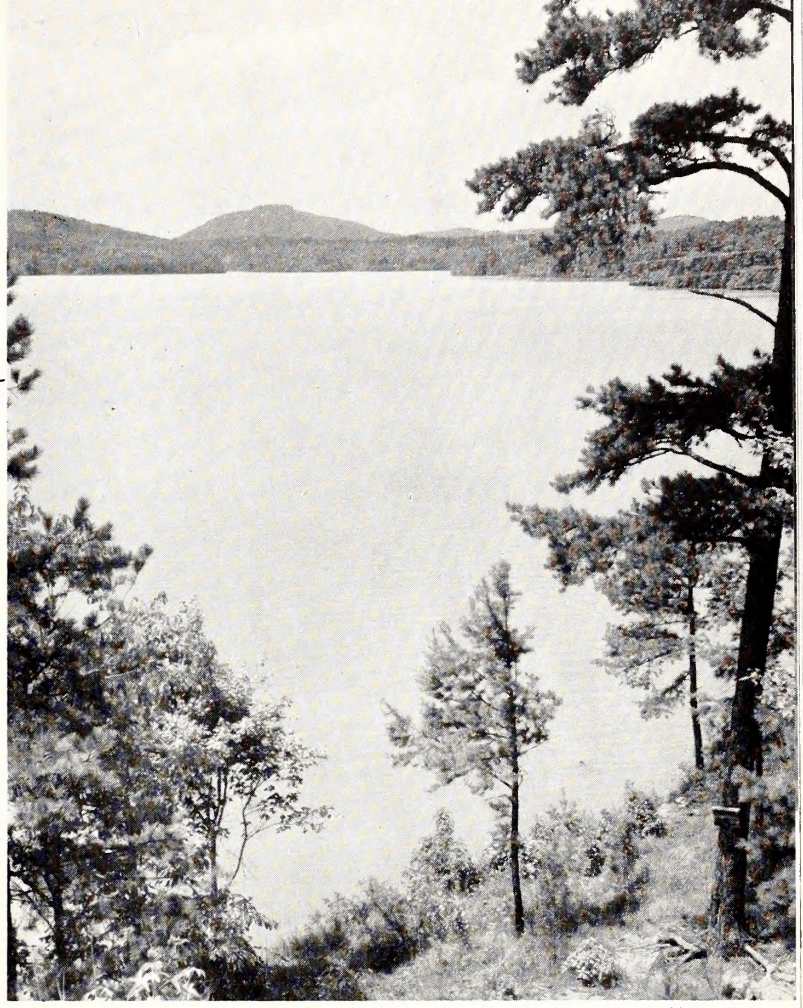


Photo by Jack Dermid

Tillery Lake as seen from N. C. Highway 27-73 Bridge, with Morrow Mountain State Park in the far distance.

mendations by the Wildlife Commission the power company has, for a number of years, maintained a constant water level during the spawning season of game and pan fish.

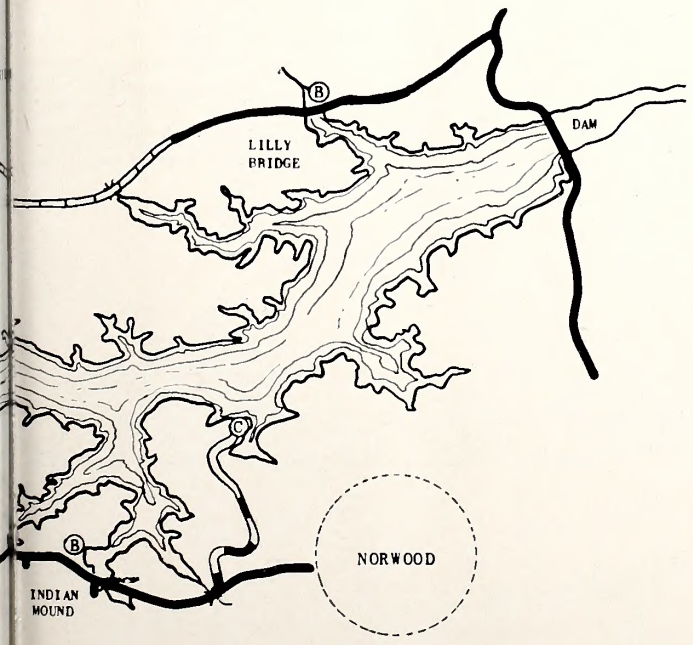
Access

The lake has two public fishing access areas and two semi-public areas. The Wildlife Resources Commission has recently completed a beautiful fishing access area with plenty of parking space and a concrete ramp just off N.C. Highways 27 and 73 in Montgomery County. This area was obtained by agreement from the Carolina Power and Light Company and developed by the Wildlife Resources Commission. The other public area is in Morrow Mountain State Park near the upper end of the lake.

The two semi-public areas were developed by local sportsmen; one is on the Stanly County side at Indian Mound; the other is on the Montgomery County side at Lilly Bridge.

Tillery Lake can be reached from three state highways: N.C. Highways 27 and 73 seven miles east of Albemarle and N.C. Highway 731 four miles west of Mount Gilead.

Illustration by Duane Raver



Accommodations

At present, few accommodations are available for visiting fishermen on the shores of Tillery Lake. However, Morrow Mountain State Park has a limited number of cabins available. For information regarding these cabins write to the Park Ranger at Morrow Mountain State Park.

There are two small docks on the lake that sell gas and miscellaneous goods (see above map). The only boats available for rent are at Morrow Mountain State Park.

Fish Population

Tillery Lake is one of the top-notch fishing lakes in North Carolina and has catchable populations of most warmwater game fish present in North Carolina. Largemouth bass and white bass are the most important species with sunfish, white perch, and crappie next in importance.

Largemouth Bass

Excellent catches of largemouth bass are made in May and June and again in October around the numerous weed beds along the shore of the lake. Tillery is one of the few impounded reservoirs in the state having extensive beds of aquatic vegetation along the shoreline. The beds of vege-

tation are naturals for fishermen because they afford hiding places for fish.

According to the 1957 summer fish survey the largemouth population is about the same as it was the previous year. Reproduction was a little lower this year but not alarmingly so. Ups and downs in annual reproduction are to be expected in most reservoirs and seldom affect the fishing success to any great extent.

During March and April fish for bass with deep running lures around weed beds and steep rocky banks. Two favorite early spring lures of local fishmen are Johnson Spoon with pork rind and the Cisco Kid.

During May and June fish the weed beds almost exclusively using surface or shallow running lures. Fly rod fishermen dream of this season when bass poppers and bugs are at their best. While fishing, keep a careful watch and if you see a school of small fish around the weed beds be sure to drop a bug in the middle of the school. These are often schools of largemouth bass and Poppa Bass is usually not far away. As a general rule he is very cooperative and will hit the bug with enough force and fury to knock it out of the water. Sometimes, however, he will rise and suck in the bug with very little water disturbance. I know you have had the experience of glancing up to see a squirrel playing on the bank and return your glance to the water to see your bait has disappeared without any warning whatsoever. So it goes in May and June.

From July to September fish deep-running lures around points and deep channels. Various jigs are popular during this season because of their weight and ability to fish the bottom. Watch for schools of gizzard shad—bass, both largemouth and white bass, often follow these schools and a well placed cast in the school might very well produce the fish you have been waiting for. Remember they are feeding on the small shad, so the lure used should be approximately the same size as the shad. The rest is up to you. By the way, the limit is 8 largemouth and 15 whites.

White Bass

White bass were successfully introduced in Tillery Lake in 1952 and are now very popular. Excellent catches of this species are made near the upper end of the lake and in the Uwharrie River during their spawning run in early spring. The major spawning ground for Tillery Lake white bass is in the Uwharrie River.

Indications are that inclement weather and high water were limiting factors in white bass reproduction last year. Netting studies and the summer survey indicated a relatively poor spawn for 1957. Poor spawns every few years are characteristic of the species and explain why one year white bass fishing may be excellent and the next year fishing success will taper off only to rise again the following season. Now don't be pessimistic—white bass fishing will be as good in 1958 as it was in 1957. You may not catch quite as many but the ones you do catch should be larger fish.

When fishing for white bass remember:

1. *They are school fish; where one fish is caught there are usually more.*

2. *They have relatively small mouths so your bait should be small.*

3. *They are a pelagic (open water) species so expect to find them anywhere in the lake. As one great fisherman said, "white bass are where you find them."*

4. *As a general rule bass poppers and top water lures are not very effective for white bass because they are not surface feeders; stick to a small spinner, spoon, or jig.*

During March and April fish deep-running lures around the mouth and upstream in Uwharrie River. Small concentrations may also be found just below Falls Dam at the mouth of Mountain Creek,

Unusual among power reservoirs in North Carolina, Lake Tillery is bordered by many weed beds that provide a haven and feeding place for largemouth bass that attract many fishermen.

Photos by Jim Lee

and near the mouth of Jaccobs Creek. The most popular baits are Abu Reflex spinner, Shyster, Super Duper, and small jigs, and small minnows.

During May and June fish deep-running lures near mouths of tributary streams and deep channels. Use the same lures mentioned above; if these fail try live minnows. If the opportunity presents itself try night fishing in the mouth of tributary or bay with light of a gasoline lantern shining on the water. Minnows are the preferred bait because edible size forage fish are not readily available and the may fly nymphs, which are the main food at this season, serve only as a maintenance diet.

During July to September fish deep-running lures around points and deep channels during the day or shallow-running lures when gizzard shad schools are near the surface. The schools of shad are usually more active and closer to the surface during twilight hours. During this time a favorite bait is a surface lure with a small jig or streamer fly attached to it by a one to two foot length of leader.

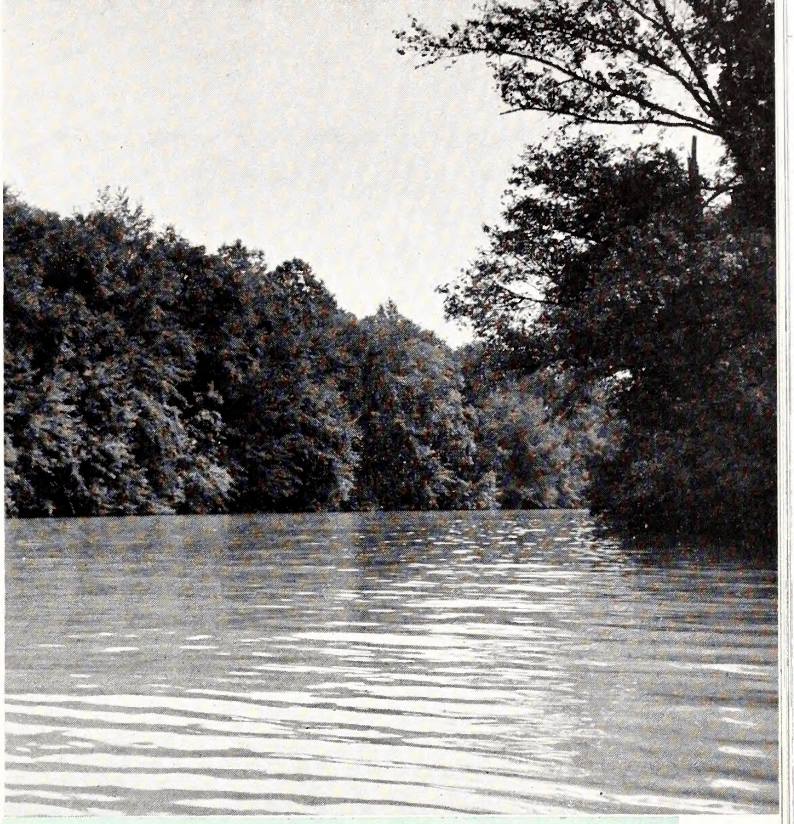
Bluegill and Other Sunfish

The largest catches of bluegills and other sunfish are made from May through September. During these months sunfish usually "bed" or spawn two or three times and it is at this time they are most vulnerable to the fisherman. The "beds" are usually in colonies so the secret of success is to find a "bed". Once they are located the bantam fighters are more than apt to do their part. Most fishermen have their own methods of finding concentrations of sunfish ; there is one school that claim they can smell a bluegill bed. Other methods are: Troll slowly until you get a sunfish strike, anchor the boat and fish in the vicinity of the strike. Sometimes in clear water the bed can be seen. If you find an uninhabitated bed mark it well in your memory and return to it every few days. Sunfish will probably return after a few weeks to spawn again. Areas where beds were found in previous years are always good bets because, unless conditions change, these areas will be used again.

In Tillery Lake look for sunfish concentrations around weed beds, old tree tops, sunken logs, in small nooks, and heads of small coves adjacent to the main lake.

Shellcrackers

Shellcrackers, one of the largest members of the sunfish family, are a new species of sunfish that have been successfully introduced in Tillery Lake by the Wildlife Resources Commission. The new species appears to be doing quite well in the lake. Several specimens weighing one pound or over were taken during the lake survey last summer. The shellcrackers can be distinguished from the bluegill by the scarlet or orange edge on its gill cover (opercular lobe). Shellcrackers are not as readily caught on artificial lures as are bluegills; one reason may be their preferred diet of snails.



The Uwharrie River, spawning area for Tillery Lake's white bass population, a new fish in the Carolinas.

White Perch

There is a very high population of catchable size white perch in Tillery Lake. In netting studies carried out last summer the white perch made up 47.4 percent of the total weight of fish taken. There is no chance of this species being overfished.

The white perch as a general rule is not as readily taken on artificials as on bait, and therefore are more of a favorite of the cane pole fisherman. A small hook and worm or shrimp will produce results when a school of white perch is located. Good results are occasionally obtained by the fly fisherman with small wet flies and streamers.

Walleye

Adult walleye were introduced in Tillery Lake in the spring of 1952. To date all reproduction checks have failed to find any evidence of successful spawning. It appears that biological conditions are not suitable for this species in Tillery Lake.

Crappie

Information obtained from recent surveys shows a fair population of small crappie but very few of catchable size.

Catfish

Catfish constitute an important species to the fishermen of Tillery Lake although they are not considered game fish. Present information shows a surplus population of catchable size fish that fishermen cannot hope to harvest. Catfish do not cooperate very well with the warm weather fisherman; however, excellent catches are made in the winter and early spring. Find a deep hole or creek channel, drop a hook baited with worms, shrimp or similar bait to the botton. While waiting for a bite, can't you just smell that catfish stew?

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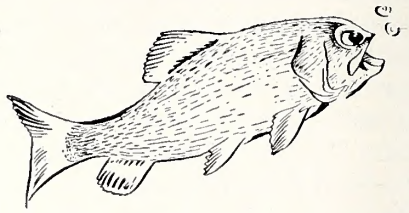
WHAT DO YOU CALL

MANY PEOPLE HAVE MANY NAMES FOR OUR FINNY FRIENDS; HERE'S A LIST GIVING EACH FISH ONE STANDARD NAME.



By Lee Tebo

WHAT do you call it? That depends on where you live and who your friends are. Brag to your out-of-state friends that you caught a fifty-pound Channel Bass last summer and instead of admiring your skill they may say, "What kind of fish is that?" Your Florida pal calls him a Redfish; in the Chesapeake Bay area he's known as the Red Drum. In fact, there have been 22 different names recorded for this one fish, *Sciaenops ocellata*.

Local and regional names for fish give rise to all sorts of confusion. Many a tourist has pled to the judge, "I thought I was within the limit, your honor—we call this fish something else back home." And who can blame the poor angler, when some fish that are found all over the country have as many as five dozen different names!

There is *one* name for each fish that fish biologists recognize as *the* name—the scientific name, written in Latin. But the gang at the tackle shop is going to be hard to convince that they should start saying "*Archosargus probatocephalus*" when they may have known the fish as "Sheepshead" all of their lives.

Another approach is to leave the scientific name to the scientists and settle on one common name and to recognize that one name universally. Deciding on *which* name shall be *the* common name is a monumental task, especially when considered on a national scale.

For several years the Outdoor Writers Association of America has been working on a check list of the common names of principal sport fishes. They have had the cooperation of the American Fisheries Society, which standardizes scientific names. Nationally known sportsmen and sports writers have cooperated, as have fish specialists in museums and universities around the country. The following list is taken from the fourth revision of the OWAA compilation, and includes only those sport fishes commonly found in North Carolina waters.

FRESHWATER FISHES

Common Name of Fish	Scientific Name of Fish
Bass, Largemouth	**Micropterus salmoides**
Bass, Rock	**Ambloplites rupestris**
Bass, Smallmouth	**Micropterus dolomieui**
Bass, White	**Roccus chrysops**
Bowfin	**Amia calva**
(Also known as the Mudfish and the Dogfish)	
Bullhead, Brown	**Ictalurus nebulosus**
Bullhead, Yellow	**Ictalurus natalis**
Carp	**Cyprinus carpio**
Catfish, Blue	**Ictalurus furcatus**
Catfish, Channel	**Ictalurus punctatus**
Catfish, Flathead	**Pylodictis olivaris**
Catfish, White	**Ictalurus catus**
Chub, Creek	**Semotilus atromaculatus**
Crappie, Black	**Pomoxis nigromaculatus**
Crappie, White	**Pomoxis annularis**
Gar, Longnose	**Lepisosteus osseus**
Muskellunge	**Esox masquinongy ohiensis**
(This is the form found in the Ohio River system, Lake Ontario, certain spots in New York and in the St. Lawrence River.)	
Perch, White	**Roccus americanus**
Perch, Yellow	**Perca flavescens**
Pickerel, Redfin	**Esox americanus**
Pickerel, Chain	**Esox niger**
Sunfish, Bluegill	**Lepomis macrochirus**
(This species has come to be "the sunfish" of the country through its tremendous propagation and stocking. Unfortunately it has sometimes crossed with other species of the family.)	
Sunfish, Green	**Lepomis cyanellus**
Sunfish, Longear	**Lepomis megalotis**
Sunfish, Pumpkinseed	**Lepomis gibbosus**
(This is the old-fashioned sunfish of the country boy but this name has fallen into disuse so far as the present generation is concerned. It is now just Sunfish.)	
Sunfish, Redbreast	**Lepomis auritus**
Sunfish, Redear	**Lepomis microlophus**
(In the olden days, and still in some places, the Redear Sunfish was known as the Shellcracker.)	
Sunfish, Spotted	**Lepomis punctatus**
Trout, Brook	**Salvelinus fontinalis**
(This is the native Eastern Brook Trout, now found in many states thanks to artificial propagation.)	
Trout, Brown	**Salmo trutta**
(This introduced species has come to be the salvation of some worn-out Eastern streams. Our Brown Trout is a cross between imported German Brown Trout and imported Scottish Loch Leven Trout, and through thorough mixing in hatcheries the two species have become indistinguishable.)	
Trout, Rainbow	**Salmo gairdneri**
(Originally native to Western America, it has been introduced widely wherever suitable habitat can be found. Because of its wide geographic range, it has developed many localized subspecies.)	
Walleye	**Stizostedion vitreum**
Warmouth	**Chaenobryttus gulosus**

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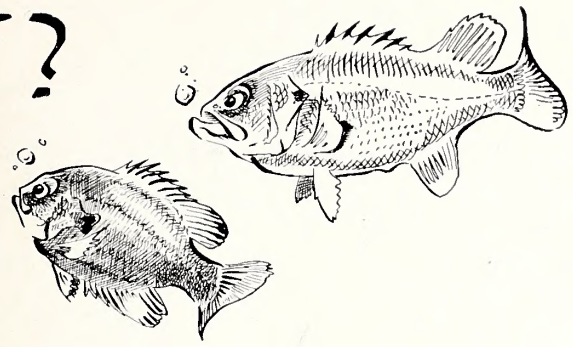


SALTWATER FISHES

Amberjack — **Seriola dumerili**

Barracuda, Great — **Sphyraena barracuda**

(This is the big fellow most abundant off the Florida coast and found ranging the seas alone or in groups of two or three.)

Bass, Channel — **Sciaenops ocellata**

(This is the great battler of the Atlantic surf. A list of 22 common names has been collected, of which Red Drum in the Chesapeake Bay area and Redfish in Florida are the more generally used.)

Bass, Sea — **Centropristes striatus**

(The young of this popular sport and food fish come into tidal estuaries in great numbers and are called Black Wills. Also known as the Black Sea Bass along the upper Atlantic coast.)

Bass, Striped — **Roccus saxatilis**

(This is the Rockfish of the Chesapeake Bay area, where some of the Atlantic population is spawned. Rockfish is the common name along the rivers in North Carolina where Striped Bass are caught during the spring.)

Bluefish — **Pomatomus saltatrix**

Catfish, Gafftopsail — **Bagre marinus**

Cobia — **Rachycentron canadus**

(This great battler is known by many names in many places, among them being Cabio, Sergeant Fish, Black Bonito, Ling, and Lemon Fish.)

Croaker — **Micropogon undulatus**

Cutlassfish — **Trichiurus lepturus**

Dolphin — **Coryphaena hippurus**

Drum, Black — **Pogonias cromis**

Eel — **Anguilla rostrata**

(A true fish, the eel has a right to be included in this list. The freshwater eel migrates to the ocean to spawn.)

Flounder, Starry — **Platichthys stellatus**

Flounder, Summer — **Paralichthys dentatus**

(This is the well-known Fluke of lower New England and upper Middle Atlantic waters and its newer name will be hard to make stick in these areas, but is used for purposes of simplification.)

Flounder, Winter — **Pseudopleuronectes americanus**

Herring, Common — **Clupea harengus**

(Primarily a commercial species but used extensively for bait by anglers.)

Mackerel, Atlantic — **Scomber scombrus**

(Also referred to as the Common Mackerel.)

Mackerel, King — **Scomberomorus carvalla**

Mackerel, Spanish — **Scomberomorus maculatus**

Marlin, Blue — **Makaira ampla**

Marlin, White — **Makaira albida**

Menhaden — **Brevoortia tyrannus**

(An extensively used bait fish; also called the Fatback.)

Mullet, Striped — **Mugil cephalus**

(This is chiefly a food and bait fish, but in some sections is taken also for sport as well as for bait.)

Pigfish — **Orthopristis chrysopterus**

Pompano — **Trachinotus carolinus**

Runner, Blue — **Caranx crysos**

Sailfish, Atlantic — **Istiophorus americanus**

Sailor's Choice — **Haemulon parrai**

Seatrout — **Cynoscion regalis**

(This also appears in the list as Weakfish. WILDLIFE Magazine prefers Weakfish, and this is the name used in fishing regulations which apply when the fish is in inland waters.)

Seatrout, Spotted — **Cynoscion nebulosus**

(As with the Weakfish, the Spotted Seatrout is also listed as Spotted Weakfish. WILDLIFE prefers Spotted Weakfish.)

Shad — **Alosa sapidissima**

(Formerly a strictly commercial fish, of late it has become a fine sport fish being taken on a fly, streamer or spoon on its way to the spawning grounds.)

Shad, Hickory — **Alosa mediocris**

Sheepshead — **Archosargus probatocephalus**

Snapper, Red — **Lutjanus blackfordi**

(Although not official at this writing, the scientific name of this species will be changed to **Lutjanus aya** as it has been found that descriptions of **L. aya** (1790), **L. compechanus** (1861), and **L. blackfordi** (1861) all refer to the same fish. The oldest name takes preference. This shows that even the scientific names are subject to change, as more is learned about the variations and descriptions of fish.)

Spot — **Leiostomus xanthurus**

Tarpon — **Megalops atlantica**

Toadfish — **Opsanus tau**

(Given a place in this list because of its nuisance value to sport fishermen, particularly pier fishermen.)

Wahoo — **Acanthocybium solandri**

Weakfish — **Cynoscion regalis**

(See the statement under Seatrout regarding this fish.)

Weakfish, Spotted — **Cynoscion nebulosus**

(See the statement under Spotted Seatrout regarding this fish.)

Whitefish, Ocean — **Caulolatilus princeps**

Whiting, Northern — **Menticirrhus saxatalis**

Whiting, Southern — **Menticirrhus littoralis**

This is only part of the fish listed in "Standard Check List of Common Names for Principal American Sport Fishes." Some of the listed fishes have been omitted because their occurence in North Carolina is doubtful or infrequent. Other fish that do occur in North Carolina were not listed by the OWAA because their value as sport fish is not recognized.

James Heddon's Sons of Dowagiac, Michigan, assumed responsibility for publication of the booklet, a generous gesture made on behalf of the OWAA and sport fishing. Single free copies of the booklet may be obtained by sending a stamped and self-addressed envelope (4x7 inches or larger) to:

Headquarters, OWAA
7 St. Paul Street
Baltimore 2, Maryland.

Clubs wishing to secure enough copies for their membership may do so by sending enough postage for parcel post, 16 lists running to the pound. Also include 25 cents for packing.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Wildlife Protectors Crack Down on Preseason Trout Anglers.

Over-eager trout fishermen who followed hatchery trucks during the preseason trout stocking period had their knuckles cracked by wildlife protectors, and on conviction paid substantial court fines for jumping the gun on the mountain trout fishing season. Using its patrol plane to spot out-of-season anglers, and two-way radio communication to give car-borne protectors the location of violators, the Commission's crackdown was highly effective, and the interests of good sportsmen willing to wait for opening day were protected.

Mountain Trout Season Under Way April 5

April 5 marks the opening of the trout season in North Carolina's designated mountain trout waters. During the preseason and inseason stocking period a total of 275,500 large trout will have been stocked. Included in the total are 165,000 rainbows, 83,900 brooks and 26,000 brown trout. All the trout are in excellent condition and of catchable size.

Sandhills Lakes Opened to Fishing

By April 2 all but two of the lakes on the Sandhills Wildlife Management Area will be opened to fishing, and on June 1 Bagget's and Crappie lakes will be opened. As of April 2, McKinney, Crawford, Gum Swamp, Broadacres, Kinney Cameron and Scotland were open for fishing. Special use permits are required on all lakes except McKinney, and these permits will be available free of charge at the Crawford and Broadacres checking stations. Lake McKinney will be open daily, while the others will be open Wednesdays through Sundays until November 15 when all of the lakes will be closed. Complete regulations for fishing in the Sandhills Lakes are available from the Wildlife Commission, Box 2919, Raleigh.

''Deep Freeze'' Did Not Spoil Fresh Water Fishing

Despite ''numb-outs'' along the coast and a freeze-over of most of the inland lakes, ponds and streams, Tar Heel fishing in April was expected to be up to at least normal. Although there was some loss of fish in such localities as East Lake in Dare County, limit catches of bass, bream and crappie were being made in these areas by late March. Warm weather in April should see fresh water fishing hit a peak.

Wildlife Protectors to Attend Refresher Course

Ben James, Wildlife Enforcement Chief, announced that all wildlife protectors are scheduled for a one-week refresher course at the U.N.C. Institute of Government during the period March 30-May 10, 1958. There will be three sessions, with one third of the force attending each session.

An invaluable aid in checking waterfowl hunting along the North Carolina coastal rivers and sounds is the pontoon-equipped plane of the Fish and Wildlife Service's game management section.

Photos from U. S. Fish and Wildlife Service

THESE ARE ACTIVITIES OF
YOUR FEDERAL WILDLIFE MEN

Waterfowl's FEDERAL FRIENDS

ONE of the most important activities of the U.S. Fish and Wildlife Service is that of protecting and managing the waterfowl that migrate along our four major flyways. North Carolina's coastal marshes and sounds provide some of the best wintering grounds for waterfowl to be found anywhere, and ducks and geese flock to the area between Currituck Sound and Beaufort by the many thousands. Hunters come from many states to take advantage of these waterfowl, and one of the jobs of the U. S. Game Management Agents is to make sure that hunters take their fair share by preventing illegal hunting. Working closely with North Carolina's wildlife protectors, the federal agents cover the entire state.

Other duties of the federal agents include the census of wintering flocks. Using federal and state aircraft, estimates are made of the numbers of ducks and geese each year. The information gained is then used in setting federal waterfowl regulations the next year. After the hunting season birds are trapped and banded. These bands give further information on the number of birds, and provide knowledge of the complex migratory habits of waterfowl. Reports of crop damage are investigated, and efforts are made to reach a compromise between the needs of agriculture and those of wildlife. These and other tasks keep federal agents busy—and the increasing numbers of birds attest that they are among waterfowl's best friends.

Waterfowl's FEDERAL FRIENDS

ABOVE: Ducks are removed from trap. BELOW: Banding lesser scaup.

. . . WATERFOWL BANDING

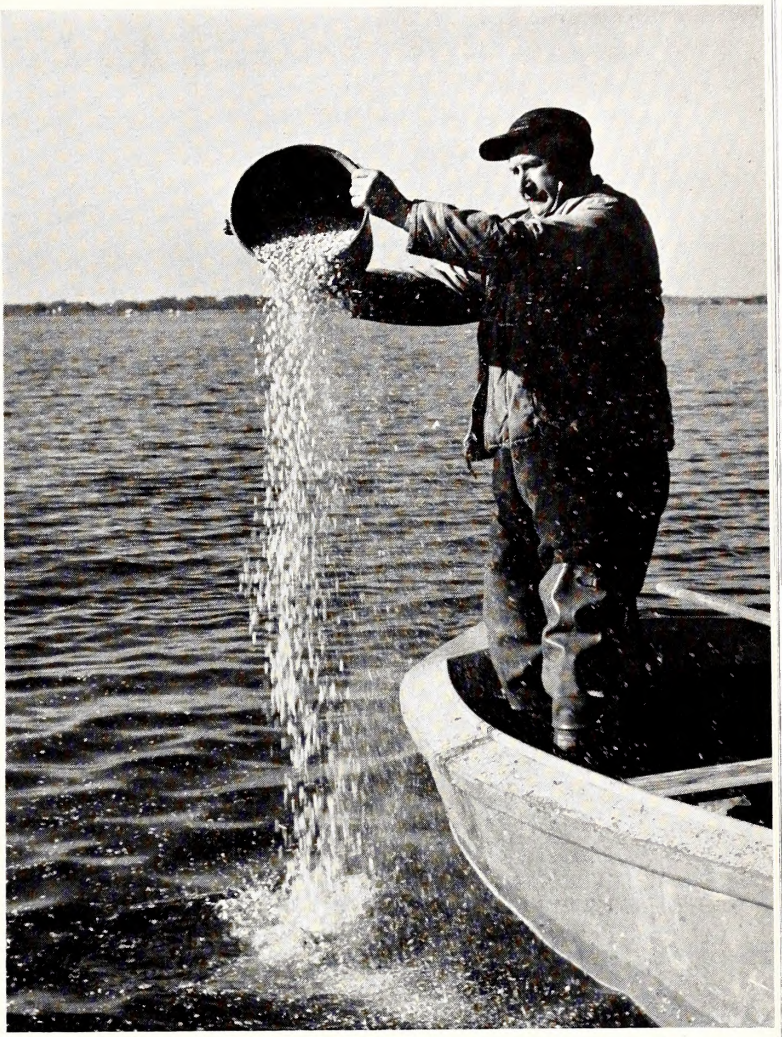
Waterfowl banding is necessary to provide accurate information for the setting of federal regulations. Traps are placed near feeding areas, and hundreds of ducks are trapped, banded, and released. The bands you return will help in this important program.

BELOW: Releasing duck after banding.

. . . LAW ENFORCEMENT

Law enforcement occupies much of the time of game management agents during the winter. Using modern equipment such as patrol planes, boats, and radios (operating on the Wildlife Commission's assigned frequency), the federal agents patrol the waterfowl areas for out-of-season hunting, illegal methods, and unlicensed hunters. All cases involving the federally-protected migratory birds are tried in federal courts. Waterfowl prosecutions made by state wildlife protectors are usually turned over to the federal men since federal courts have jurisdiction. Some cases require years to complete; undercover agents are used to break up organized waterfowl marketing.

ling surplus grain from boxcar. BELOW: Coast Guard helicopter tributing grain during recent extreme cold weather.



Federal agent distributes surplus grain for waterfowl.

. . . SURPLUS GRAIN FOR WATERFOWL

Surplus corn for waterfowl, brought by the carload from Midwestern grain elevators, is distributed in North Carolina after the hunting season by federal game management agents. The corn, given to the Fish and Wildlife Service by the Commodity Credit Corporation, is used for luring the birds from farmers' fields to prevent crop depredations; for feeding waterfowl during extreme weather; and to bait traps used in the banding program.

THESE ARE OTHER ACTIVITIES OF FEDERAL GAME MANAGEMENT AGENTS

federal game management operations are not icted to coastal waters alone. Increasing flocks ucks and geese are using inland ponds and voirs and protection and management of these s also receives attention. Lake Mattamuskeet onal Wildlife Refuge is one of the federal re- s on which hunting is permitted: game agents t the state refuge assistant in protection.

Reports to the Fish and Wildlife Service are made listing the numbers of birds killed in North Carolina, including other migratory species such as rails, gallinules, doves, woodcock, and snipe. Information and education is another function; public appearances, television and radio programs, and newspaper releases help keep the hunting public informed of the status of their resource.

Old Doc Battersby and the Biologist

By B.J. VERTS

No one would try to grow a crop of corn without expecting to harvest it. Should we grow a crop of game without a harvest?

I HAD been working in the southern part of my district most of the day and was starting for home when I remembered that it had been quite a while since I had stopped by to see Old Doc Battersby. The route that I was taking went by Old Doc's shack, so I wouldn't be going out of my way—anyway it was almost suppertime, and I have a standing invitation at Doc's. As I neared the lane that leads from the main road to Doc's shack, Dan, my Cocker, jumped into the front seat, yawned, and began to watch the road ahead. I'm amazed at how he always seems to know when I am going to stop to see the Old Doc.

Doc was sitting on the front steps with a big block of juniper and a rasp when I stopped the station-wagon in front of the shack. He got up, scraped the pile of shavings under the step with his foot, and called, "Hullo, there, boy. Good to see you agin," He turned and set a half-finished decoy and the rasp on the steps.

Dan bounded from the station-wagon as I returned Old Doc's greeting, "Hi, Doc. You're either early or late, thinking about duck season. This is the middle of April."

"I'm too old to git out on the Sound in a Nor'easter. But I kin still remember when I wasn't. Been makin' the New Doc a few blocks," the old doctor said as he rubbed my cocker's ears. "Come on in an' set, while I put on a pot o' coffee."

Old Doc put coffee and water into the blackened pot and set it on the fire. He unwrapped a ham that hung from a ceiling beam and cut two man-sized slices before he asked, "You'll stay for supper, won't you?"

When we had finished our ham, Doc refilled our coffee cups and lit his pipe. Dan ate the last of the ham gravy and biscuits, then lay down in front of Old Doc's feet. Doc took the pipe from his

mouth and laid it on the edge of the table as he said, "I been thinkin' about what you fellers say about conservation bein' ever'body's business'." He picked up his pipe and took a couple of puffs before he continued, "Your idear is good, but I think you're goin' about it backwards."

"How's that, Doc?" I asked.

"You tell ever'body that conservation is his business, but you don't always tell'em what conservation is," the old man replied. "Most people got the idear that conservation has somethin' to do with savin', instead of having' to do with *the way you go about usin'* what you got."

"We say that conservation means *'Wise use'*," I interrupted.

"When you git to thinkin' about the way we go about usin' our game, then the meanin' of conservation really makes sense," Old Doc mused.

"You hit the nail right on the head that time, Doc," I said, "game is one resource that you can't stockpile. We know that about three-fourths of our quail and rabbits and almost half of our deer die every year *whether we have a hunting season or not*. So the conservation of wildlife not only includes practices which tend to improve game populations, but it also includes the *harvest* of a portion of that *surplus* of animals that aren't going to survive the winter anyway."

I finished my coffee and put the empty cup on the table before I continued, "That's where we get the idea of using wisely the game that we produce. We have restrictions in the form of hunting seasons and bag limits to insure that an adequate breeding population survives, so if we don't harvest a large part of the game each year, then we are *wasting* one of our most valuable natural resources."

Doc looked at me over his glasses, like he does when he's trying to put me on the spot, then said, "O' course, you're right, but some fellers ain't sure that all those animals would die if we didn't hunt'em."

"Let's look at it this way, Doc," I explained.

"In the past, some states and even parts of North Carolina have had a closed season for a number of years on one game animal or another. If hunting is the *one* factor that determines whether game populations are good or bad, then those places should have been knee-deep in quail and rabbits and deer, shouldn't they?"

Before Doc could answer my question, I did it for him, "Well, they weren't! And I can't see that those animals were used very wisely during those years that the surplus wasn't harvested, since they didn't provide anyone with sport or food. Now that those areas are open to hunting, sportsmen have been taking an annual harvest and there seems to be no important change in the game populations from year to year."

Old Doc seemed to be thinking deeply about what I had been saying, so I said, "After all, Doc, you started this discussion, and I've been doing all of the talking, now let me hear your ideas."

Doc knocked the ashes from his pipe into the palm of his hand, then threw them into the empty fireplace. He took the leather pouch from his hip pocket and began to refill his pipe as he said, "I reckon that you could say that what we been talkin' about is a lot like farmin'. A farmer plants a crop 'tends it all summer, an' in the fall does his harvestin'. But, if he didn't do his harvestin' he wouldn't be usin' his crop very wisely.

He scratched a match on the underside of the pine table and touched it to his pipe before he continued, "O' course, he wouldn't be in business very long, either."

I smiled at Doc's joke as I commented on what he had said, "I like the way that you compared our discussion to farming, Doc. No one would neglect a crop of corn like our game crop is sometimes neglected."

I picked up my jacket and thanked Doc for the ham. Dan jumped into the station-wagon as the Old Doc called, "You'll be back next week to try the bream, won't you?"

"That's one date I won't forget, Doc."

The SCHOOL

PART VII
LIVE EXHIBITS

HAVE you ever watched the progress of a mass of frog eggs through the tadpole stage into a fully developed frog? Or have you seen a butterfly emerge from its cocoon? Until a few centuries ago, people thought that frogs descended from Heaven fully grown, brought by the rains. No one had ever bothered to observe that there were connections between the funny little tadpoles with tails and the four-legged frogs that were seen far removed from the water. Observation is now the keynote of science, and the scientific method of accepting nothing as fact until proven by observation is the guiding principle of true science.

Within the classroom many of the wonders of the world around us may be observed first hand. Because of their adaptability many animals can be brought into the school and studied. However, many are better left outdoors. What kind of animals will live in our classroom zoo, and what are their requirements?

An entire community may be found in the shallow water of a fresh-water pond or small stream. Duplicate the environment and they will live in the classroom. A glass aquarium with a clean sand and gravel bottom and a few plants growing in it will accommodate many different kinds of animals. Small minnows and the young of larger fish will provide the most activity. Other animals, such as snails and mussels, will help keep the community clean. Crayfish are not hardy in captivity but will live long enough to demonstrate their way of life. Small turtles are extremely long-lived, and will permit handling. Water bugs soon fall prey to other members of the community, providing an excellent lesson in the food habits of animals.

The environment should resemble as much as possible the home of the animals. Begin with a clean aquarium, checked for leaks and cracks. A layer of clean gravel is then covered with well-washed sand. Rocks add to the picture and give turtles a place to relax out of the water. Grasses gathered along the edge of the pond can be used, but generally they must be washed thoroughly to remove mud and silt. Water plants are just as satisfactory; both the submerged and floating varieties will add to the beauty of the aquarium.

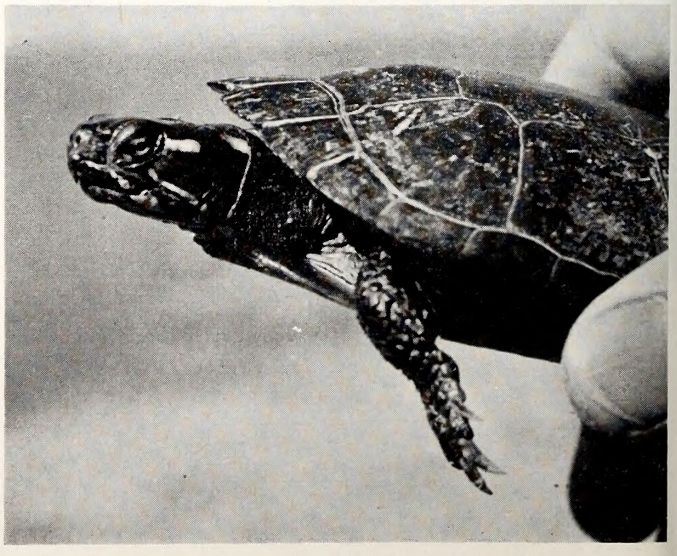
The bottom of the aquarium should be fairly smooth and uncluttered when completed. Seasoned tap water or clear water from the pond finishes the preparations. Chlorinated tap water should be allowed to give off its gases for a few days before fish are placed in it. Abrupt changes in temperature should be avoided; never transfer fish from one temperature extreme to another.

Most of the animals mentioned will thrive on ground hamburger or chopped earthworms. Earthworms are easy to obtain; mention the need for them to a group of small boys and prepare yourself for an avalanche. Top minnows will provide food and exercise for turtles. The commerical fish food prepared for tropical fish can be used in an emergency, but this is expensive and less satisfactory for small fish than either hamburger or earthworms. Another food that adds to the diet of snails and turtles is chopped lettuce. Small bits dropped in the tank will soon disappear.

Even with the best of house-cleaners in the tank, occasionally there will be bits of food left over. Unless removed, they will decay and foul the tank. A piece of glass tubing is handy for picking up small wastes without disturbing the tank; hold your finger over the end to trap air in the tube as you place it over the waste to be picked up. When you release the trapped air the waste will be sucked into the tube with the water that rushes in.

Snakes present a problem when kept alive. Although there are many harmless snakes that do well in small cages, even the most innocent can be troublesome. Unfortunately, many people abhor snakes of any species. Children as well as adults can have an unreasonable fear of snakes, and to try to overcome this fear by tossing a green snake at a person is just about as risky as trying to teach a youngster to swim by throwing him into water over his head. If some child in the class shrinks from the thought of touching a snake, don't force

This small painted turtle would make an excellent aquarium pet. Look for him in the shallows of freshwater lakes and ponds.



MUSEUM

By Jim Lee

Photos by Jack Dermid

the issue. By tactfully pointing out that the snake is harmless, and by setting an example, you can encourage the child to conquer his fear in his own good time.

Three snakes are recommended as short-term residents of the school museum. The DeKay's snake, a small brown ground snake with black markings, does well in captivity. So does the green snake. The hognose snake, or puff adder, is a delightful pet and has never been known to bite. Until he realizes that his bluff is of no avail, he will puff, hiss, and spread his throat like a cobra. Slap the table beside him and he will probably roll over and play dead. Place him on his belly again and he will repeat the process. These snakes are best kept in wire cages or in dry aquaria partly filled with sand. Earthworms and small frogs make up their diet; getting them to eat in captivity is difficult, however.

Where space permits, and the inclination of the children runs in the direction of keeping more and bigger snakes, the black snakes and king snakes are good exhibit specimens. Some black racers are very docile and allow themselves to be handled at will. Most black chicken snakes are less reliable. Handle them with heavy gloves to be on the safe side. Food for these snakes is no problem if you can obtain white mice. The blacks and kings enjoy white mice, and their manner of eating is a spectacle that older children may appreciate. The snakes insist that their food be alive, and take their time eating the mice. Much can be learned about the value of these mouse-catchers by such a demonstration, for these are the best rodent controls on a farm.

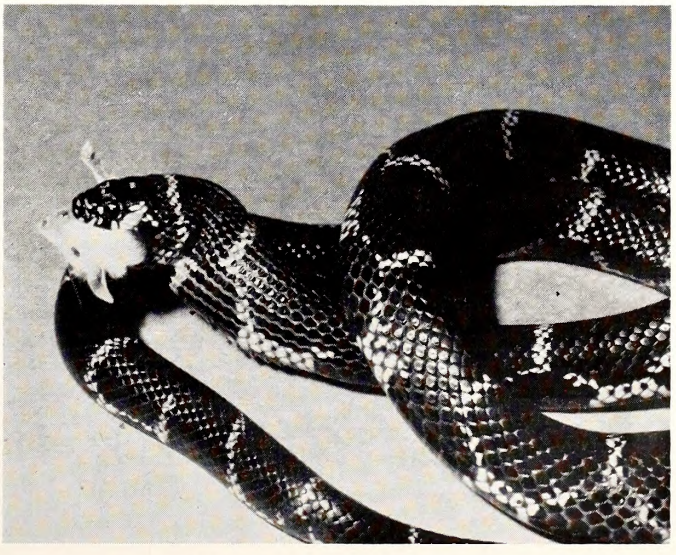
Live mammals are not recommended except as temporary visitors. Laws prohibit the keeping of game animals except under very strict regulation, and only larger zoos and museums are equipped to build cages meeting the legal requirements. White mice and guinea pigs are much better suited for classroom use; standard wire cages and commercial rabbit food solve the housing and feeding problems. Both mice and guinea pigs enjoy bits of vegetables such as lettuce, collards, and carrots. The children will enjoy bringing food from home to help feed them. Another mammal that is suitable for older children is the hamster; these animals do sometimes bite but are easy to keep and feed on the same diet as mice and guinea pigs.

A terrarium in the classroom is one of the easiest ways of bringing some of the outdoors inside. A leaky aquarium or a gallon jar from the school cafeteria provides the housing; rich soil from the woods completes the preparations. A glass cover over the top causes the escaping moisture from the plants to condense and return to the soil, so that little or no attention need be given the plants.

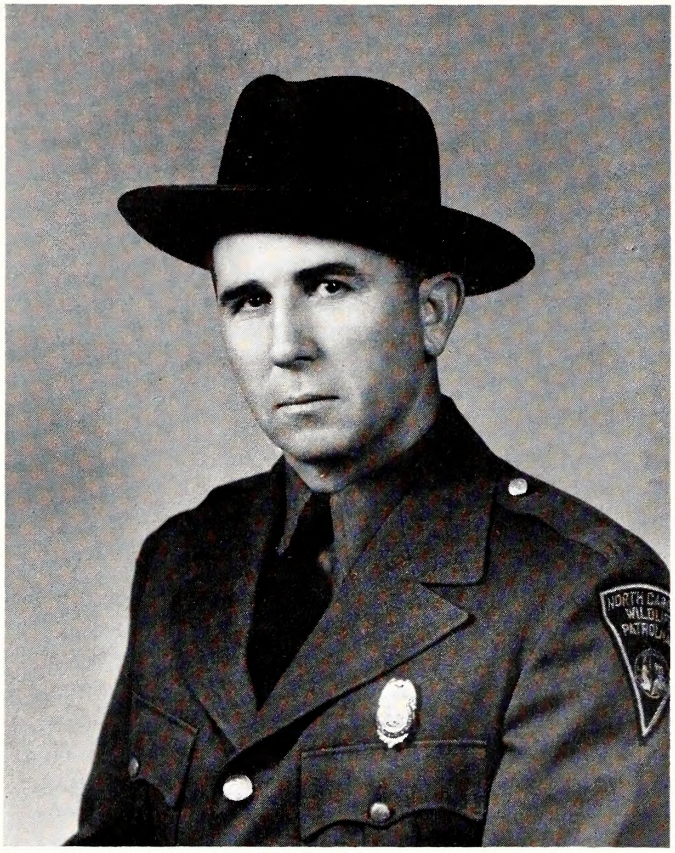
The same principles that apply to other exhibits should be considered with live exhibits. Live exhibits are most effective when studied over a period of time. Labels need not be so comprehensive, since reference books may take their place. The arrangement of the materials is less important, since the eye needs little encouragement to follow the movements of darting fish and crawling turtles. But the need for careful planning and careful preparation is just as important for live exhibits.

Toads, such as the Southern toad, do not thrive in indoor tanks, but will do well in outdoor pools where they may catch insects.

King snakes, as below, and black snakes prefer live food as white mice, and will demonstrate their value as mouse-catchers.



PROTECTOR OF THE MONTH



Lester A. Pierce

Mr. Lester A. Pierce, Wildlife Patrolman in District 1, was born in Chowan County on December 23, 1907, and attended the Hertford County Schools.

Prior to employment with the North Carolina Wildlife Resources Commission in 1946 as a Wildlife Protector, he worked with the Elizabeth City Police Department and the U. S. Treasury Department. In April, 1954 he was promoted to the Wildlife Patrol.

A Mason, Mr. Pierce is married and has two daughters. The Pierce's are members of the Berea Baptist Church in Elizabeth City, where they reside.

ENFORCEMENT RECORD FOR FEBRUARY

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of February, 1958.

Persons checked	**13,254**
Total prosecutions	**176**
Total convictions	**170**
Total cases not guilty	**3**
Total cases nol prossed	**3**
Total fines collected	**$2,112.66**
Total costs collected	**$1,458.54**

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW

QUESTION: Is it lawful to shoot alligators with bow and arrow?

ANSWER: Since the alligator has not been declared a game animal, and since there are no restrictions on taking them, it is legal to use bow and arrow for the purpose of taking these animals.

TROUT SEASON OPENS APRIL 5

County wildlife protectors work closely with hatchery personnel in distributing trout in mountain counties where the fishing pressure exceeds the natural production of trout in the streams.

North Carolina's trout season opens April 5 with two changes in regulations. Effective January 1 the season restrictions on trout in impounded waters of the Tuckaseegee power reservoirs were removed and other reservoirs were designated as trout waters.

Trout licenses will be required. Another change affects fishing for trout in all waters; after opening day there will be no restrictions on night fishing. On opening day only, fishing begins at 7:00 in the morning. As usual, the special trout license is required of all anglers fishing in designated trout waters. Hatchery personnel report that stock for public waters will reach 275,550 fish this year. Of that total, there will be 83,900 brook, 165,650 rainbow, and 26,000 brown trout produced in state hatcheries. Initial stocking began in Mid-March and will continue through the season. As usual, fishing will be available to the public on wildlife management areas certain days of the season.

Managed Hunt Report

By Frank B. Barick
Chief, Game Division

HERE ARE THE RESULTS OF THE MANAGED DEER, BEAR, AND BOAR HUNTS OF THE PAST SEASON.

THE harvest of big game—primarily deer—has increased substantially every year for the past ten years. Ten years ago the total deer harvest on managed areas was 400—this year it was nearly 1300. This is a direct result of the Commission's long-range program of establishing more hunting opportunity for all hunters. The increase has been accomplished by increasing the productivity on areas already established and by setting up new areas in suitable locations.

Ten years ago managed hunts were conducted on only five areas. This year hunters could take their pick from 14 different wildlife management areas. Ten years ago about 2,200 hunters were accommodated on the big game still hunts. This year about 24,000 hunters used the facilities—more than ten times as many hunters.

Types of hunts have been expanded. Ten years ago one could either still-hunt for deer or dog-hunt for bear and boar. This year the use of dogs was permitted on one deer hunt area (Sandhills) and dogs were provided on another (Holly Shelter). This year bow and arrow hunts were provided on all of Pisgah and on Daniel Boone, Uwharrie, and Holly Shelter. For the first time since the enactment of the game law, doe hunting was provided on the management areas.

While most of the increase in hunting opportunity has been in deer hunting, there has also been some expansion of management area hunts with dogs for bear and boar. Ten years ago there were accommodations for 10 parties of bear hunters, and all were taken. This year 54 hunts were scheduled, and 47 were taken. Ten years ago 10 bears were harvested. This year 36 were taken, along with nine wild boar.

Hunting opportunity has also been expanded in regard to length of season. Ten years ago the managed hunt deer season was open for six days. This year the season was open for 12 days on most areas. Bow and arrow hunting added seven days on some areas and one area was open for 75 days. Ten years ago all of the managed hunts were conducted between October 3 and December 24—a period of less than three months. This year some of the managed hunts opened with a dove season on September 7 and closed with grouse on February 15. Managed area hunting of some type was available for nearly six months out of the year!

These are only part of the overall figures. Copies of a detailed report including all hunts on all areas are available on request from Game Division, Wildlife Resources Commission, Box 2919, Raleigh.

Summary of 1957 Big Game Hunts

WILDLIFE MANAGEMENT AREA	RIFLE HUNTS						BOW HUNTS		
	Still Hunters	Dog Hunters	Buck Kill	Antlerless Kill	Bear Kill	Boar Kill	Archers	Buck Kill	Antlerless Kill
SANTEETLAH									
Slick Rock and Deep Creek	499	123*	28	.....	5	6	.....	.....	.....
Big Santeetlah	.....	123*	.....	.....	6	8	.....	.....	.....
Slick Rock	162	.....	.....	.....	1	1	.....	.....	.....
FIRES CREEK	587	.....	45	.....	.....	4	.....	.....	.....
STANDING INDIAN	867	.....	68	.....	.....	4	.....	.....	.....
WAYAH BALD	370	.....	28	.....	.....	.....	.....	.....	.....
SHERWOOD									
West Fork	1,068	93*	50	.....	.....	.....	.....	.....	.....
East Fork	342	106*	18	.....	5	.....	.....	.....	.....
PISGAH									
Davidson River	2,457	.....	138	30	4	.....	182	.....	.....
N. Mills River	2,846	.....	138	12	5	.....	153	.....	.....
Bent Creek	1,167	.....	41	11	.....	.....	.....	.....	.....
Pisgah Ledge	340	.....	13	.....	2	.....	.....	.....	.....
Cantrell Creek	124	.....	22	.....	2	.....	.....	.....	.....
Bradley Creek	68	.....	10	.....	1	.....	.....	.....	.....
Gloucester	.....	70*	.....	.....	3	.....	.....	.....	.....
RICH LAUREL	502	.....	36	.....	.....	.....	.....	.....	.....
MT. MITCHELL									
South Toe	1,558	.....	95	14	.....	.....	.....	.....	.....
Curtis Creek	749	67*	35	.....	2	.....	.....	.....	.....
Camp Alice	59	.....	6	.....	.....	.....	.....	.....	.....
FLAT TOP									
Spivey	373	.....	19	.....	.....	.....	.....	.....	.....
Poplar	134	.....	6	.....	.....	.....	.....	.....	.....
DANIEL BOONE									
Fox Camp	2,024	76*	87	35	1	.....	235	1	2
Edgemont	879	76*	53	9	1	.....	.....	.....	.....
Kawana	925	.....	42	9	.....	.....	.....	.....	.....
Chestnut Mountain	57	.....	9	.....	.....	.....	.....	.....	.....
THURMOND CHATHAM	322	.....	16	.....	.....	.....	.....	.....	.....
UWHARRIE	2,288	.....	81	57	.....	.....	690	2	.....
SANDHILLS	.....	1,155	19	.....	.....	.....	.....	.....	.....
HOLLY SHELTER	41	366	18	.....	.....	.....	30	.....	.....
TOTALS	20,808	2,255	1,121	177	38	23	1,290	3	2

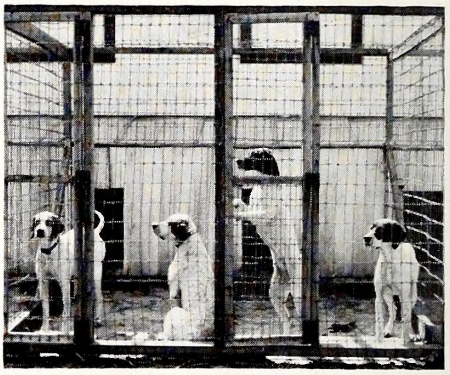
*Bear hunters

The rifle hunters averaged 16.9 days per kill, while archers averaged 258 days per kill.

The totals for hunters include those attending special antlerless deer hunts.

Spectators and handlers follow the field trial through the longleaf pine forest.

A tense moment as the dog handlers await the signal to release prize dogs.



Eagerly looking forward to their turn, dogs enjoy the comforts of new kennels.

FIELD TRIAL

Photo Short by Rod Amundson

The North Carolina Field Trial Association held one of its most successful field trials on the Sandhills Wildlife Management Area course last month. Drawings for the amateur stakes were held on March 6, and the open stakes on March 9, with the appropriate trials following until all the heats had been run.

The Field Trial Association has been active in promoting the field trial course, and the Wildlife Resources Commission has done a splendid job of making it one of the finest, if not the finest, field trial courses in the entire country.

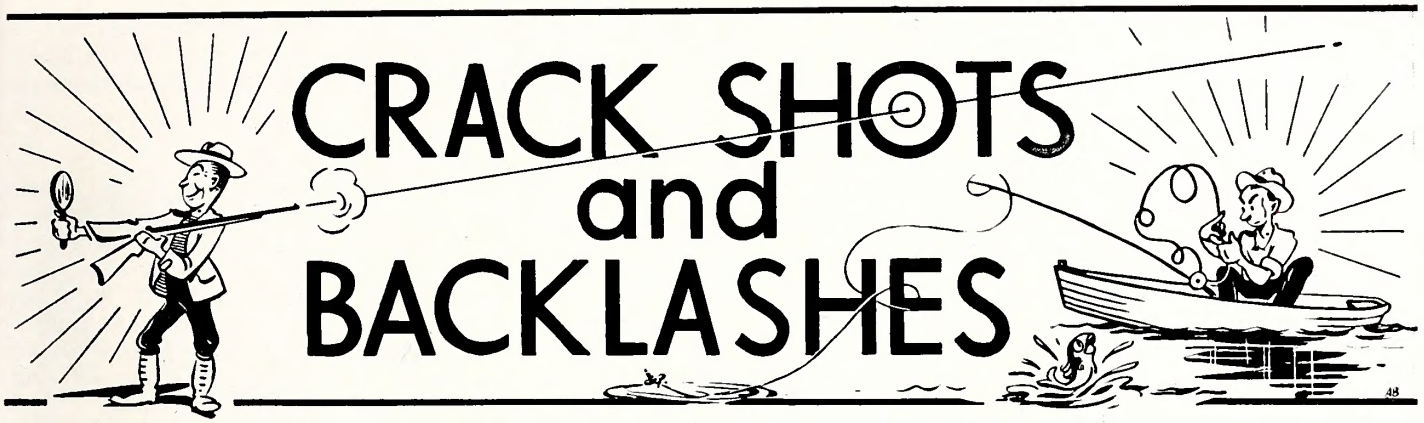
Although the geography and environment of the sandhills region is not especially well adapted to small game production, it has been developed, through clearings and plantings of various small game foods, to the point where there are at least 60 known coveys of native birds along the courses.

There is a total of 31 miles of marked courses on the field trial area. These meander through the longleaf pine woods among food patches, bicolor and other shrub lespedeza plantings and along natural thickets where quail find ample protection and loafing cover.

The North Carolina Field Trial Association is not an "exclusive" club in any sense of the word. Although many members are wealthy, anyone having a good bird dog may enter the trials. This is particularly true of the puppy and derby classes, while many amateurs enter the gun dog stakes.

Since the trials were under way at press time the winners cannot be announced here. The May issue of WILDLIFE will list winners and owners.

Tired horsemen return to the field trial barn after following part of the course.



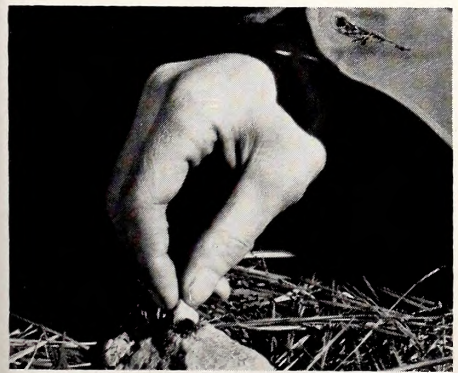
DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

With buds bursting and spring flowers in bloom, it is hard to remember just how cold it was last winter. Food for waterfowl was airlifted from the midwest to feed wintering waterfowl. Ferry service was held up by ice, and a southern-style ice floe knocked part of Wright Memorial Bridge out of commission. Sea trout along the coast got so cold they "numbed out," and in the mountains, hatchery operators had a rough time keeping pipes from freezing and trout from dying from lack of oxygen. The following letter attests to the work they did:

WILDLIFE GETS AROUND

In the March issue one of WILDLIFE's readers asked if it would be possible to send a gift subscription overseas. WILDLIFE does go to foreign countries as well as every state in the Union. We asked Anne Taylor, hard-working circulation manager who keeps up with the 60,000 mailings of the magazine, to make an estimate of the circulation outside North Carolina.



Be careful with fire—even a little cigarette can ignite a whole forest. Be sure your fire is out before you leave it.

Anne came up with some very interesting figures, which show that WILDLIFE goes to 22 foreign countries. Included is Canada; only one Canadian province in not on the mailing list. Hawaii and Alaska each have several subscribers, and APO addresses account for a number of mailings to servicemen overseas.

"Best seagoing boat I ever had!"

South Carolina leads the list of other states, receiving 1,041 copies monthly. Second high is Virginia, with 810, followed by Georgia with 355. Two copies go to Nevada, one to a paid subscriber and one to the Game and Fish Commission.

Out-of-state mailings include paid subscribers, gift subscriptions, exchange agreements with other publications, and complimentary copies to other wildlife agencies. Out-of-state interest in North Carolina's wildlife resources extends beyond those who just want to read about our hunting and fishing; in a recent year non-resident license sales amounted to more than $150,000.

"Dear Sir:

"Just received my first copy of WILDLIFE IN NORTH CAROLINA and enjoyed it very much. In my opinion its top-notch and second to none.

"Since I'm not a native North Carolinian you may wonder how I became interested in your State and magazine—Well, I was lucky enough to marry a wonderful girl from Franklin, North Carolina, and have since been "adopted" as an honorary citizen of Macon County. My Father-in-law, Mr. Boise Hall of Franklin, gave me a copy of your magazine and I've become a regular reader ever since. If it wasn't for my job here in Atlanta you can bet I'd move to North Carolina, but fast. I fell in love with North Carolina after the first trip up there.

"Since our trips up are not as often now as before (two children added), I'm trying to keep up with all the news as best I can.

"Hope you won't cut off my subscription just because I'm a Georgia Cracker and not a Tar Heel. I think you have a fine State, and your Commission in Macon County is tops.

Sign of the Month—One of 35 such signs, free public fishing access areas are located from east of Manteo to west of Murphy.

Here it is—an exclusive photograph of that character you've always seen only as a blur as he roars past your fishing skiff; his intent is to swamp all the anglers who won't get out of his way. Stopped for gas, he told a WILDLIFE reporter, "Look bub, the thing unusual about me is that my face reveals my true character. I'm not alone."

I'll be looking forward to many more issues in the coming months.

Yours very truly,
John R. Bankston, Atlanta"

Thanks, John, for the kind words.
—Ed.

"Dear Sir:

"We are sending you a record of wildlife we saw killed on the highways in Ashe County, North Carolina for the year 1957, beginning January 1 and ending December 31. This represents an average of one hundred miles of driving each day, five days each week, which we do in our work.

"I'm thinking this will be of interest to you and WILDLIFE readers: rabbits 72; opposum 57; skunk 59; fox 2; woodchuck 4; quail 2; squirrel 2; muskrat 2, and deer 1.

"We enjoy WILDLIFE very much.

Yours very truly,
B. K. Bard and J. A. Baldwin
West Jefferson, N. C."

Careful driving pays off not only in saving human lives, but wild lives as well. Thanks, fellahs, for the interesting information. We need more field observations like this If our readers and fellow employees would send us more stories like this we would set up a regular feature in WILDLIFE along the lines of "Notes from the Field."

"Dear Sir:

"I am writing to you in the hope of obtaining information as to where I can get a map or maps of the state of North Carolina showing all of the small streams and tributaries of the larger rivers. I would also like very much to locate a number of small lakes or farm ponds throughout the state with easily accessible roads leading thereto.

"I have been stationed here in North Carolina for the past four years and have found the fresh water fishing to be of the best anywhere in the Nation. In my opinion it is just as good as the fishing in Florida, if not better. With one exception, of course, and I believe that it is the lack of advertisement. If the Chamber Of Commerce would advertise the wonderful fresh water fishing in the state in such magazines as Sports Afield, Field and Stream, and Outdoor Life, the state as a whole would benefit by more tourists being attracted to this area.

"I thank you for any attention and consideration shown this letter.

Yours truly,
Sgt. F. G. Huskley, Jacksonville, N. C."

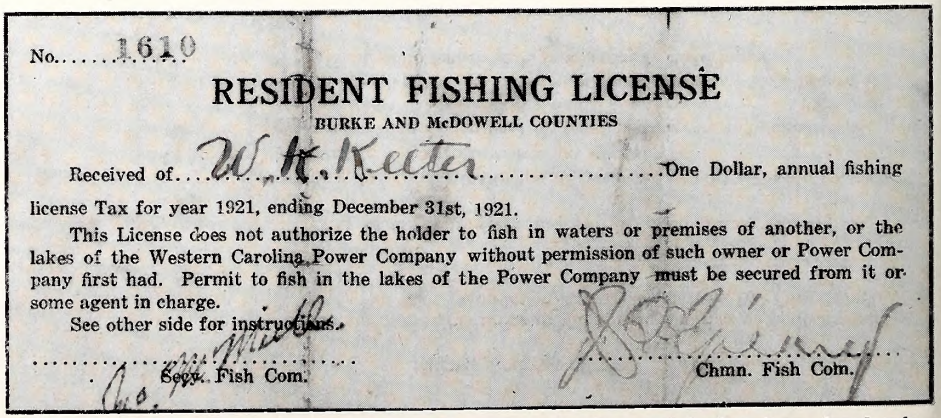
Probably the best maps available are detailed county maps printed by the Highway Commission. It is doubtful that any map shows the location of Tarheelia's thousands of farm ponds.

"Dear Sir:

"I would like to know if you have a public place provided by N. C. Wildlife anywhere around our Roanoke Rapids Lake.

"I hope you have or will have soon a nice place like I've seen listed in WILDLIFE at different times elsewhere in the State.

"Please let me know about this. I live very close to the lake and I am very interested in the future use of it.



No. 1610

RESIDENT FISHING LICENSE

BURKE AND McDOWELL COUNTIES

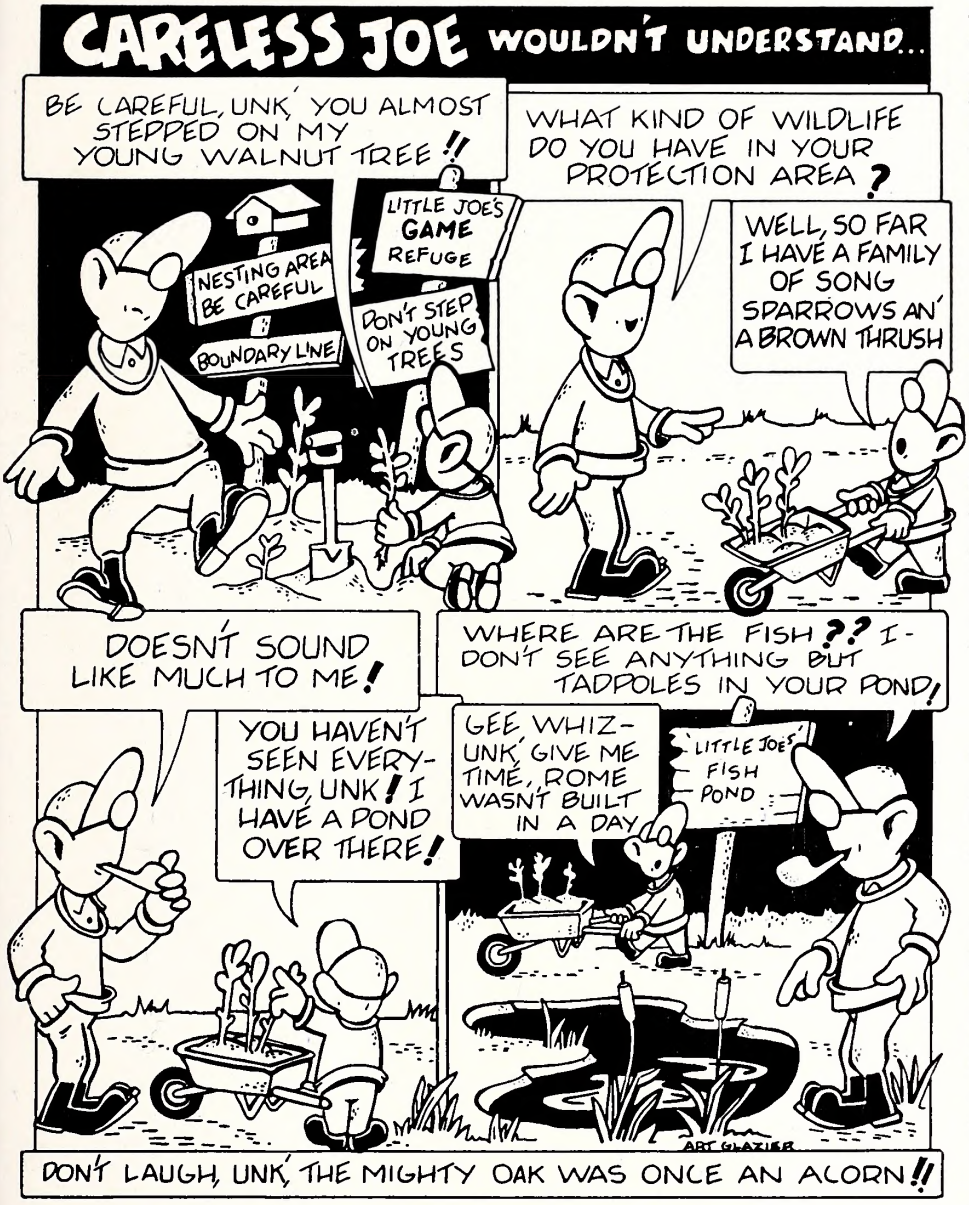
Received of W. H. Keeter ..... One Dollar, annual fishing license Tax for year 1921, ending December 31st, 1921.

This License does not authorize the holder to fish in waters or premises of another, or the lakes of the Western Carolina Power Company without permission of such owner or Power Company first had. Permit to fish in the lakes of the Power Company must be secured from it or some agent in charge.

See other side for instructions.

Secy. Fish Com. Chmn. Fish Com.

In 1921 residents of Burke and McDowell counties needed this permit to fish in lakes of the Western Carolina Power Company. The permit was 8 inches long, legal minimum for bass at that time in those counties.



"We take WILDLIFE in my daughter's name, Viola Kidd. Thank you.

Yours sincerely,

D. I. Kidd, Jr. Roanoke Rapids, N. C."

Mr. D. I. Kidd
Roanoke Rapids, N. C.

"Dear Mr. Kidd:

"In reply to your recent letter inquiring about a fishing access area on Roanoke Rapids Lake, we are happy to inform you that the Wildlife Commission has received a lease on an eight acre tract of land from the Virginia Electric and Power Company, which will be developed as a public access area. This site is located in Littleton township of Halifax County, near Old Thelma. At the present time, this area is scheduled for development as time and funds permit. We hope that this area will serve the sportsmen of this area and provide free public access to this impoundment.

Very truly yours,
Duane F. Raver, Jr.
Federal Aid Coordinator
Fish Division"

"Dear Sir:

"They may not hear directly from many, if any, of us but I haven't talked to a sportsman yet who hasn't voiced his appreciation for the splendid work the hatchery boys did in this past prolonged cold spell. They had to work around the clock in bitter cold to save the fish — and they did the job. There is something more than money that keeps these devoted men on the job during such a time and our hats should be off to them.

Yours very truly,

Holmes Bryson, Jr., Enka, N. C."

"Dear Sir:

"I am fifteen years old, and I wish to travel the Appalachian Trail in the western part of our great state. I would appreciate any information you can give me concerning such a trip.

"If you are unable to furnish this information please let me know where I may secure it. You may write me or I will look for a reply in the next issue of WILDLIFE IN NORTH CAROLINA. I enjoy your popular priced magazine very much. Thank you.

Yours sincerely,

Jimmy Ryan, Concord, N. C."

"Mr. Jimmy Ryan
148 South Spring Street
Concord, North Carolina

"Dear Jimmy:

"We know you would like to have the best information possible on the route and location of the Appalachian Trail as it courses through North Carolina, so I suggest you write to The Rev. Rufus Morgan, Franklin, North Carolina. Mr. Morgan is the southern representative of the Appalachian Trail Association and he will be more than glad to advise you on this venture.

"We sincerely hope you have a nice trip and would like to hear from you about what you did, where you went, and what you saw.

Sincerely yours,

William L. Hamnett
Wildlife Education Representative"

Use this blank to subscribe NOW—$ .50 a year $1.00 for two years. No stamps, please.

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P. O. Box 2919, Raleigh, N. C. **Renewal** ☐

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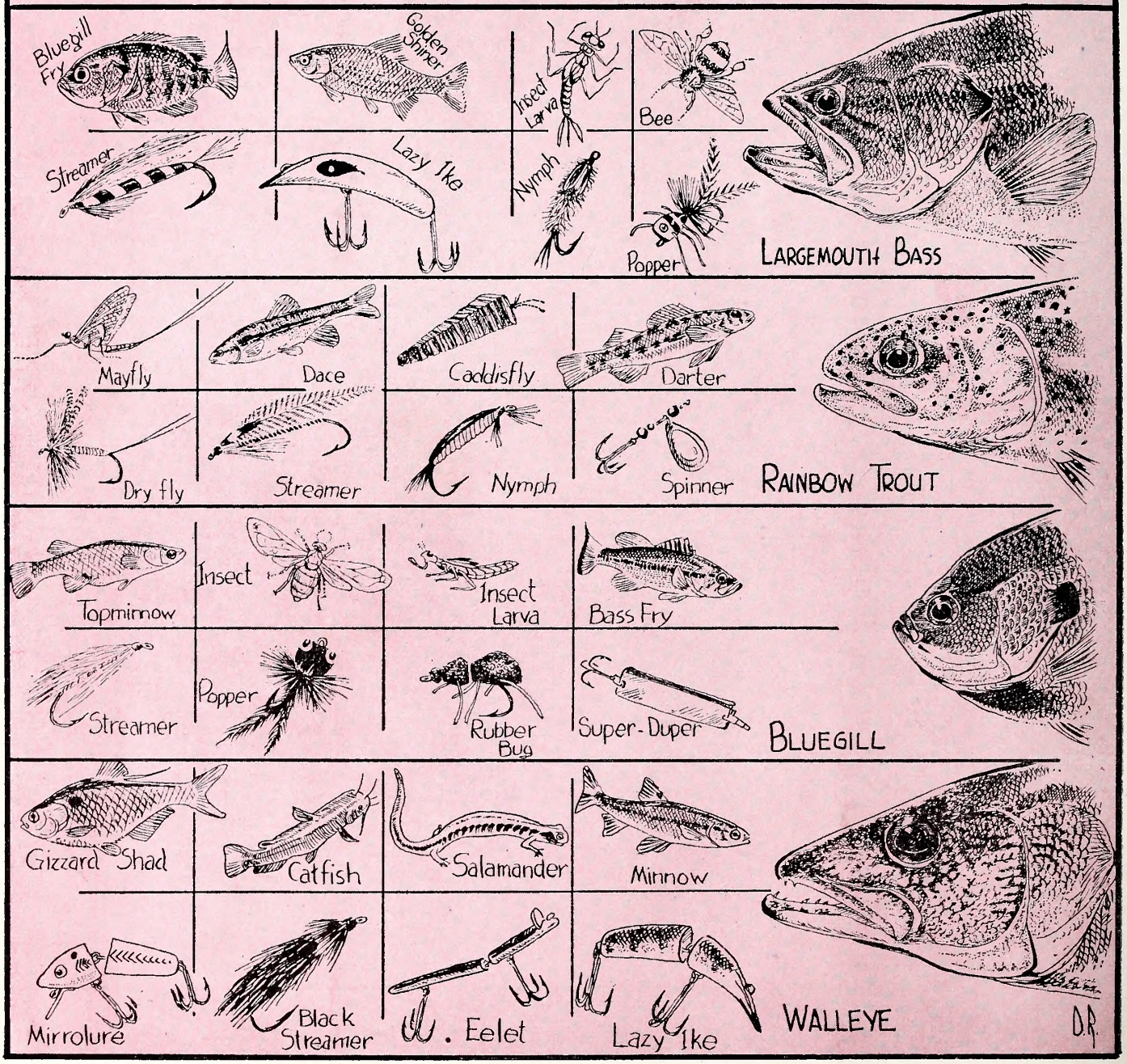
City _____ State _____

Please notify us promptly of change in address

Fish Foods and Foolers



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Raleigh

MAY-1958

Wildlife

in north carolina

TEN CENTS

Photo by Jack Dermid

May in the Salt Marsh

A clapper rail (marsh hen) casts an approving eye toward her hatching eggs and new chicks, mere balls of coal-black down feathers which blend perfectly with the dark mud and contrasty shadows of their habitat. The family will leave the nest within a few hours in search of food. Marsh hens are as characteristic of the salt marshes of North Carolina as tidewater, but because of their secretiveness, they are more frequently heard than seen.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

JAMES A. CONNELLY, *Chm.* ..... Morganton
THURMAN BRIGGS, *V. Chm.* ..... Lexington
ROBERT M. CARR, *Sec'y* ..... Wallace
G. E. BEAL ..... Red Oak
J. A. BRIDGER ..... Bladenboro
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JACK DERMID ..... Managing Editor
JIM LEE ..... Associate Editor
ANNE TAYLOR ..... Circulation

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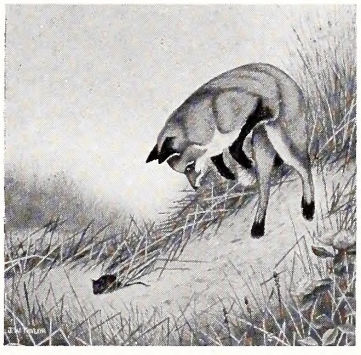


The balance of Nature is the theme of J. W. Taylor's painting of a red fox pouncing on a mouse. A food chain that involves farmers' crops, the field mice that feed on these crops, and the foxes that feed on the mice is proven by increased fox populations when mice are plentiful. Other foods include rabbits, birds, snakes, frogs, fish, corn, nuts, acorns, and of course fox grapes. Predation is a natural way of life to many animals, and the killing of a mouse or bird by a fox is just as natural as the eating of a worm or an insect by a robin—that is the balance of Nature.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

EDITORIAL

A Growing Need

NORTH Carolina is facing up to a problem that has been met in many states and that is now being considered on the National level. Water safety has been a problem since man learned he could travel on a floating log. Governor Hodges has appointed a committee to study legislation to help solve this problem.

North Carolina ranks fourth in the nation in the area of water suitable for fresh-water fishing. During the past several years the use of small boats, powered or otherwise, has been growing at a fantastic pace. Already this season there have been a number of drownings resulting directly from the improper use of small craft. Many more people will die during the vacation months because of carelessness, improper safety equipment, or improper use of equipment. Much of this tragic waste of human life could be avoided if there were a uniform, statewide, enforceable law controlling the operation of boats on our inland waters.

Recently, WILDLIFE contacted Wayland Sermons, Washington, N. C., Chairman of the Governor's Commission to study the use of motorboats in North Carolina waters. Here is Sermons' reply:

"The 1957 session of legislature authorized the formation of a commission to study the operation of motorboats on the waterways of North Carolina. Governor Hodges appointed this commission of three members and the first meeting was held November 18, 1957. At this meeting I was elected chairman, Sidney Britt of Bladenboro vice chairman and Ralph Earle, Jr., Vice Adm. USN (Ret.) was elected secretary.

"We find that there are existing regulations dealing with all our State owned lakes and these are administered by the State Parks division of C&D. There are several local acts that were passed in 1955 and 1957 that apply to waters in a particular area. I think that our commission will be interested in a more uniform set of regulations if and when we make any recommendations.

"There is now legislation pending in Congress of the U. S. that is recommended by a committee from the Council of State Government, of which our own Paul Johnston is chairman. This bill is designed to bring about uniformity among the various states and provides that each state will come under federal jurisdiction in 1960 if that state fails to have its own regulation by that time. So, it boils down to this: if this federal bill passes, we can have our own regulations or be governed by federal laws.

"Congressman Bonner has held hearings all over the U. S. and his reports indicate that the majority of boat owners favor some kind of regulations, particularly in the safety field. However, our committee plans to hold some meetings with the people in places where boating activities are heaviest, to try to determine how our boat owners feel about the matter.

"There are so many angles to this question that our committee has made no attempt at this time to let our opinions jell. We want to talk to as many people as we can and keep a completely open mind

On the Other Hand...

A recent survey has challenged many of the popular theories about the causes of boating accidents. The leading causes, according to popular thought —juvenile operators, storm, collision and fire— have been found to play second fiddle to operator negligence, failure to use common sense afloat.

According to the survey, conducted by the Outboard Boating Club of America, the national association of boating enthusiasts and the manufacturers and sellers of marine equipment, only 9.2 percent of the operators involved in the accidents studied were under 20 years old. The average age of operators involved was more than 35 years. Storms were found to be the cause of 9.15 percent of the mishaps surveyed while collisions accounted for 8.07 percent and fires and explosions could be blamed for only 1.52 percent.

On the other hand, foolish operation, overloading, standing up in the boat, unbalanced load, turning too sharply, etc. caused 35.51 percent of the fatalities.

In 1956 North Carolina had only 1.26 percent of the Nation's 4,000,000 outboard motors — but we had 3.29 percent of the fatal accidents — more than twice the national average!

on the subject until we have finished study."

We agree that the problem has more angles than a dime store diamond. The Commission needs constructive suggestions—answers to such questions as: Should existing law enforcement agencies enforce boating regulations, or should a new agency be formed? Where should jurisdiction over small boats begin or end? Should non-powered boats (such as millpond "floating coffins") be controlled? Enforcement and administration of any law costs money. Should a boat owner-operator license be required? If so, should it be a flat fee such as an automobile drivers' license, or a graduated fee based on the type of equipment? Should North Carolina get its own workable law or depend on Congress to tell us what to do and how to do it?

The Governor's Commission needs and is asking for answers to these and many more questions.

The survey was based on fatal small boat accidents reported in the nation's press during the period from May 1, 1956 through December 31 of that year.

It was further disclosed by the survey that fishermen were involved in proportionately more fatal accidents than boaters engaged in other forms of boating activity. Since fishing, as an activity, does not require high speed operation, the speed factor must be discounted as a major contributor to fatal accidents, said Guy W. Hughes, executive director of OBC.

Hughes said it is evident that present regulatory and educational efforts have been effective to a great degree, in that U. S. Department of Vital Statistics figures show that the number of fatal mishaps involving boats has declined in the face of rising popularity of the sport.

The study, said Hughes, would seem to refute the contrary position that further restrictive boating legislation is the best approach to continued reduction of these accidents since most of the fatal accidents appear to be caused by failure to follow standard safety procedures in boat handling.

Public HEARINGS

● HEARINGS ON PROPOSED 1958-1959 HUNTING REGULATIONS WILL BE HELD IN EACH OF THE NINE WILDLIFE COMMISSION DISTRICTS IN MAY.

DATE	DISTRICT	TOWN
MAY 20	9	SYLVA
MAY 21	8	MORGANTON
MAY 22	7	DOBSON
MAY 23	6	ALBEMARLE
MAY 26	5	GRAHAM
MAY 27	4	ELIZABETHTOWN
MAY 28	3	ROCKY MOUNT
MAY 29	2	NEW BERN
MAY 30	1	EDENTON

All meetings start at 7:30 p.m., and will be held in the county courthouse except at Rocky Mount and New Bern, where the hearings will be in the city court room.

● THE WILDLIFE RESOURCES COMMISSION WANTS YOUR OPINIONS AND RECOMMENDATIONS. YOUR DISTRICT HEARING IS YOUR OPPORTUNITY.

Wildlife **PRODUCES for NORTH CAROLINA**

Wings Over Northampton County

By Jack Dermid
Photos by the Author

NORTH CAROLINA MAY HAVE ANOTHER GADDY'S WILD GOOSE REFUGE IN THE MAKING AT THE T. T. STEPHENSON FARM NEAR GARYSBURG

ONE Friday night in mid-October of 1957, the stirring calls of migrating Canada geese descended upon the moonlit fields of Northampton County. The wedge of birds dropped lower and lower as it approached the T. T. Stephenson farm near Garysburg, and soon their wild clamor was heard inside the farmhouse. The Stephensons listened in anticipation, waiting to hear the splashes of the geese as they pitched into their farm pond. The wanderers from the North had returned for another winter.

This first flight of geese was the vanguard of the flocks which were to follow. The population of geese at the Stephenson farm grew daily until more than 1,000 birds had arrived to enjoy the food and protection given them. In 1956-57, about 500 geese appeared, and to the delight of the Stephensons, once more the population had doubled that of the preceding season.

From the viewpoint of the geese, the Stephenson farm is a good place to visit, for all the requirements of a good wintering area seem to be present there and in the vicinity. The farm itself, where no hunting is tolerated, gives the birds a 1,000-acre sanctuary. There is ample water. A five-acre farm pond is located within the shadow of the Stephenson home, and a short distance to the west several large borrow pits provide about 100 acres of water. Here the geese can loaf on the bare islands of clay or in open water a safe distance from shore. The newly created Roanoke Rapids Reservoir sprawls about 10 miles away, and the extensive and rich agricultural lands in the area provide food from the wastes of autumn harvesting and greens for early spring grazing.

The farm pond by the house is the focal point of the geese. Here the Stephensons plant browntop millet and feed them waste peanuts and many, many bushels of corn. Green pastures and lawns provide some grazing, and the geese are frequently seen strutting about the yard, along the roadways, and in the parking area as if they own the place. The geese are aware that they are protected at the Stephenson farm, and their confidence in man is a far cry from the wildness they exhibit elsewhere. The birds can be approached reasonably close without being alarmed. They have retained some of their inherent alertness and caution, however, and do not permit the familiarity that the geese at Gaddy's Wild Goose Refuge tolerate. But Gaddy's geese have known the good intentions of man for over 20 years, while Stephenson's refuge is only six years old.

The story of Stephenson's geese has its beginning in 1951 when about 20 wing-clipped honkers were living on the farm pond. This particular year, Stephenson forgot to give the geese their annual trim following the summer molt and before he realized his mistake the birds were flying back and forth between the borrow pits and the farm pond. He managed to recapture part of them, but some of the geese remained free to wander.

Stephenson theorizes that these free geese follow-

Mr. and Mrs. T. T. Stephenson (left) show Wildlife Commissioner G. E. Beal of Red Oak their rapidly growing goose population which had its beginning six years ago when 18 birds came for a winter visit.

A flock of Canada geese pitch into the Stephenson farm pond. Only a part of the 1,000 wild geese that spent the winter of 1957-58 at the Stephenson farm are shown. Will next winter bring 2,000 birds?

ed their wild kindred northward during the spring migration of 1952, raised a brood of their own, and then returned in the fall with some of their young and perhaps a few strays. At any rate, 18 geese arrived at his farm pond in October and spent the winter. In October of 1953, about 40 wild geese appeared. Since then the number of geese has about doubled each succeeding winter.

The Stephensons are fortunate indeed to have this growing flock of geese for neighbors. Mrs. T. T. Stephenson speaks of them in glowing terms and paints beautiful word pictures of their activities about the house. She particularly enjoys watching the flights of geese against a winter sunset. The geese talk among themselves incessantly while feeding or loafing at the farm pond, not with the familiar honking notes, but with subdued conversational tones. If they hear a sound that even remotely threatens danger, a dead silence prevails among their ranks until wise old birds signal all is clear. And, of course, there is the exciting chatter of the birds preparatory to a flight elsewhere. Sometimes, in the stillness of early morning, the rising ranks fly so close to the house that the combined noise of their calls makes the windows rattle.

Mr. and Mrs. Stephenson are both ardent hunters and have a house full of trophies they have taken through the years. But the shooting of geese on their farm is taboo, and they will go to any effort to maintain the trust the geese have in them. In 1955, a poacher took a shot at the flock. This disturbed the birds so much that most of them left for the remainder of the winter. The Stephensons were worried that their young refuge had suffered

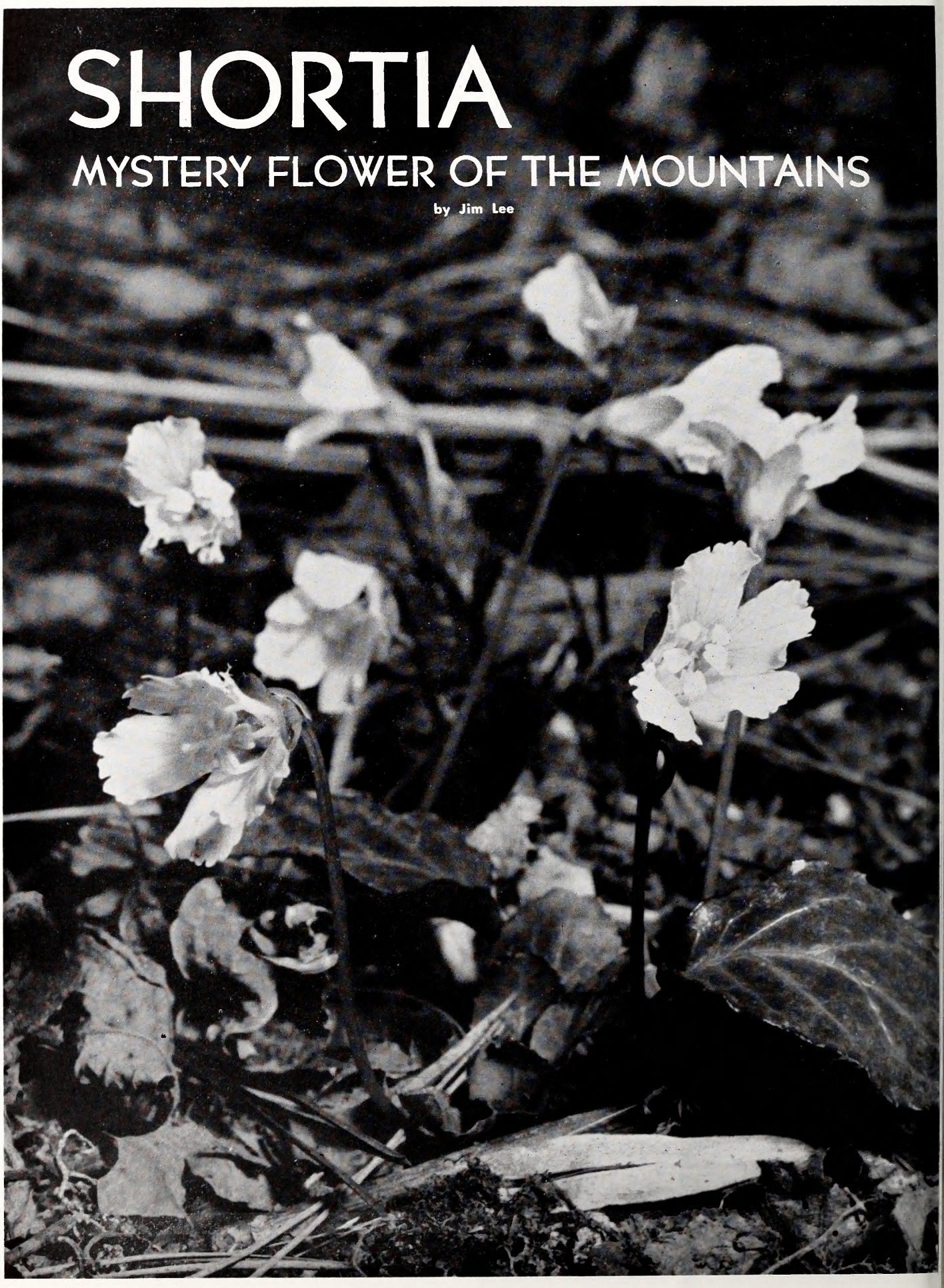
see GOOSE REFUGE on page 18

Wildlife PRODUCES for NORTH CAROLINA

SHORTIA

MYSTERY FLOWER OF THE MOUNTAINS

by Jim Lee



Lost for nearly a hundred years, the Mystery Flower of the Mountains was finally found in 1877 on the banks of the Catawba River.

GEORGE HYAMS went fishing one spring day in 1877 and solved a mystery that had baffled botanists for nearly a hundred years. History doesn't record George's success in fishing the Catawba River in McDowell County that day, but he earned his place in the legends of western North Carolina when he carried home a small white flower he found growing on the banks of the river.

The story begins a few years after the Revolution, when the French Government sent one of their best botanists to America to seek new plants that could be of value to France. André Michaux explored much of western North Carolina and eastern Tennessee in his search for valuable plants. The hardy traveler found and described many new species during his trek through the wilderness. Such plants as rhododendron and broomsedge have scientific names given them by Michaux.

The plants that he collected were carried home to France as pressed specimens, with the explorer's notes indicating where and when the plants were collected. The dried plants were placed in the Jardin des Plantes in Paris. Several were labeled "unknown", among them a single leaf and root of a plant that Michaux noted as growing "in the high mountains of Carolina." The date was December 8, 1788.

No doubt hundreds of botanists studied the unidentified specimens during the next fifty years, but the first to become interested in the obscure specimen from the "high mountains" was a young American botanist, Asa Gray. Gray recognized that the specimen belonged to a new genus of plants and proceeded to write a scientific description of the genus based on the single specimen in Paris.

The leaf of the unknown resembled that of galax, a common mountain plant. Other characters were different, however, and so Gray devised a scientific name. He honored Dr. Charles W. Short, Kentucky botanist, with the name of the genus, *Shortia*. Recognizing the resemblance of the foliage to that of galax, the species name became *Shortia galacifolia*.

Soon afterward Gray returned to America and began his search for the plant in its native state. He looked for forty years. In 1842 Gray was appointed professor of natural history at Harvard University, and on field trips he searched the peaks of many of the high mountains in western North Carolina. Gray found many other plants, and published several manuals on botany, but the little specimen in Paris continued to haunt him.

Then George Hyams went fishing. He noticed the small white flowers nodding in the April breeze and picked a few to take home to his father. The elder Hyams was a botanist employed by the Wallace Brothers of Statesville, a firm which collected plants for pharmaceutical purposes. Mr. Hyams was puzzled by the little plant and sent a specimen to Dr. Gray. The Harvard professor replied immediately to young George. "You have stumbled on what for many years I have tried so hard to find." Shortia had finally been rediscovered.

Soon Gray and several other eminent botanists arrived in Statesville and were taken to the McDowell County site. It was apparent to Gray that he had been misled by Michaux's description of the habitat of the plant—Gray had searched the mountain tops, when actually Shortia is found along streams in the foothills.

The mystery flower soon became famous, and pressed specimens were sold for as much as fifty dollars for a single plant. Several years after young Hyams found the plants in McDowell County, Prof. C. S. Sargent and Frank Boynton studied Michaux's diary and traced his route through western North Carolina. On December 9, 1886, they arrived at Bear Camp Creek, in the Sapphire country near Lake Toxaway and Highlands. There was Michaux's original bed of Shortia, covering several acres. They found the original site during the same season as Michaux— but when they returned in the spring, they found the entire hillside covered with the little white flowers that the French explorer never saw.

Today there are probably more Shortia plants growing in cultivation than are to be found in the wild. The plant requires an acid soil with leaf mold, partial or full shade, and plenty of moisture. The plants, which seldom grow more than six inches tall, will spread in a mat under good conditions. The delicate flowers last for several days, and are among the most coveted plants in any wildflower garden. The mystery flower that was lost for a hundred years has a rare beauty much in keeping with a history involving a French explorer, a Harvard botanist, and a young boy who went fishing.

The elusive Shortia can be grown in wildflower gardens when conditions are suitable. Mrs. Herbert P. Smith of Liberty provided these plants with shade, moisture, and an acid soil.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Hearings for Hunting Regulations Set

The following dates and meeting places have been approved for the public hearings for the 1958-59 hunting and trapping regulations:

May 20, 1958	District 9	Sylva	Courthouse	7:30 P.M.
May 21, 1958	District 8	Morganton	Courthouse	7:30 P.M.
May 22, 1958	District 7	Dobson	Courthouse	7:30 P.M.
May 23, 1958	District 6	Albemarle	Courthouse	7:30 P.M.
May 26, 1958	District 5	Graham	Courthouse	7:30 P.M.
May 27, 1958	District 4	Elizabethtown	Courthouse	7:30 P.M.
May 28, 1958	District 3	Rocky Mount	City Court Room	7:30 P.M.
May 29, 1958	District 2	New Bern	City Court Room	7:30 P.M.
May 30, 1958	District 1	Edenton	Courthouse	7:30 P.M.

"Birds of North Carolina" Publication Delay

A strike in the printing industry has delayed the publication of a revised edition of "Birds of North Carolina." Mr. Harry T. Davis, Director of the State Museum and one of the editors of the book said that a prolonged strike will delay publication date indefinitely, but announcement of publication will be made at the appropriate time.

Sport Fishing Short Course Set for June 9-13

The N. C. State College Extension Division has announced June 9-13 as dates for the 1958 Sport Fishing Short Course at Nags Head. Headquarters will be at Hotel Carolinian. In addition to classroom work there will be a trip to the Gulf Stream, off-shore fishing and fresh water fishing. Total enrollment will be 100 students with about 70 already registered. Complete details are available from: Division of College Extension, Box 5125, State College Station, Raleigh, North Carolina.

Training Course to be Completed May 24

By May 24 all of North Carolina's wildlife protectors will have completed an intensive training course at the Institute of Government, University of N. C. at Chapel Hill. The purpose of the course is to give instruction in fish and game law, court procedure and crime detection. The course is the first of a series of three, with follow-up advanced training to be given in 1959 and 1960.

Wildlife PRODUCES For NORTH CAROLINA

by Rod Amundson

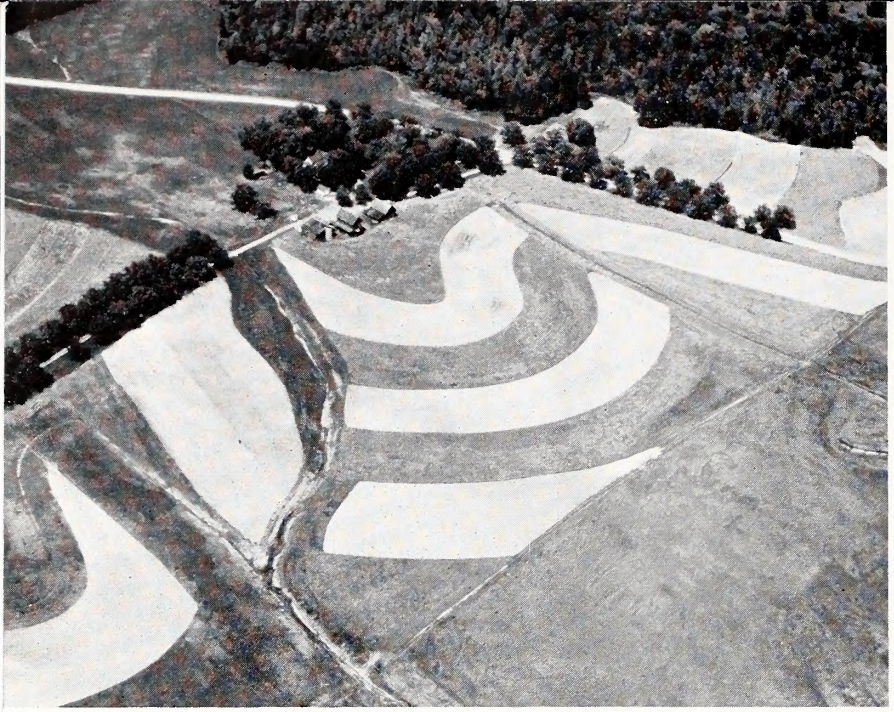
Photos by Jack Dermid

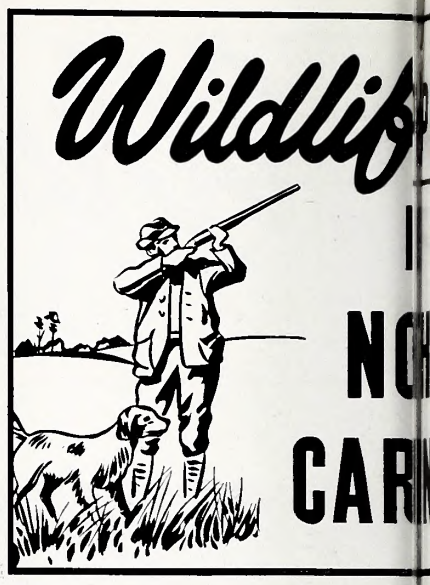
IF you have received a letter from the Wildlife Resources Commission recently, you might have noticed something new on the stamp cancellation. It has a picture of a hunter and a fisherman with the slogan: "Wildlife Produces for North Carolina."

Most slogans are designed as gimmicks to sell soap, toothpaste, automobiles or patriotism; this one came as the result of a conference or two, and the realization that wildlife really does produce for North Carolina.

Four essential values are derived from our wildlife resources, and they are available to everyone and are for the benefit of everyone. These four values are: Recreational, Aesthetic, Business, and Agricultural. It would be impossible to determine which of these is the most important, but as far as actual participation is concerned, the recreational value affects directly all who partake of the sports of hunting and fishing. More people hunt and fish than participate in all other sports combined, and very likely outnumber the people who are spectators at sport events At least 600,000 people buy North Carolina hunting or fishing licenses each year, and tens of thousands of others, who are exempted from licenses requirement, may be added to this figure. The activity of these people ranges from a hunting or fishing trip or two on the part of individuals, to hunting and fishing as a major activity.

The aesthetic and business values of wildlife tie in closely to the recreational value. Every normal person has an inherent interest in wildlife, whether it be the spring music of songbirds, a flight of wildfowl, or a squirrel stealing food from a bird feeder. Thousands of people make a hobby of studying birds and other wildlife forms. They organize into groups and have the same interest in wildlife conservation as do sportsmen's groups—sometimes being even more zealous in their activities.





ABOVE: Wildlife, such as quail and songbirds, are of tremendous value in keeping down weeds and harmful insects. Farms developed for wildlife are more valuable than those that are not.

BELOW: North Carolina provides healthful outdoor recreation to hundreds of thousands of hunters each year. A variety of game with liberal limits and seasons make hunting popular.

BELOW CENTER: Everyone is interested in wildlife for the sake of its beauty and other aesthetic values. Life in North Carolina is made more pleasant by the presence of wildlife.

(continued from page 10)

It has been estimated that North Carolina's wildlife resources are worth somewhere near $100,000,000.00 each year in business value. The sale of hunting and fishing licenses is only a small part of this amount. The rest comes from the production and sale of all the goods and services involved in hunting and fishing and outdoor living. Guns, ammunition, rods, reels, lines, baits, boats, and boots are only a few of the items. There are guide services, hotel and motor court business, gasoline, tires and other items of expense involved on hunting and fishing trips. Added to North Carolina's scenery, our hunting and fishing attract thousands of tourists who spend millions of dollars in Tarheelia each year. Many small industries have sprung up to provide boats and bait and tackle to outdoorsmen. Further,

Photo Courtesy State News Bureau

liberal bag limits, long seasons and excellent fishing have had their part in inducing industry to locate within the State.

The agricultural value of wildlife is difficult to define clearly in terms of dollars. There is no question, however, that myriads of insect- and seed-eating birds are of tremendous value to agriculture. Without these birds agriculture as we know it in North Carolina (or anywhere else) would be almost impossible. Further, farms that have been developed to produce game and fish are usually more valuable than those where this element has been overlooked. Further, land management practices that benefit wildlife have a parallel effect on the productivity of the land.

Wildlife *produces* for North Carolina. As a slogan, that statement rings true.

ABOVE: Numerous small industries have sprung up to provide equipment to Tar Heel sportsmen. The total business value of wildlife is estimated to be around $100,000,000.00 each year.

WILDLIFE produces four major values. These are: recreation, agricultural, aesthetic, and business. Through sound conservation Tarheelia has become one of the great outdoor states.

BELOW: More people go fishing than participate in all other sports combined. In total water available for sport fishing, North Carolina very likely ranks first in the entire nation.

THE SCHOOL MUSEUM Part VIII

By Jim Lee

WHEN the museum preparator places a label beneath an exhibit, it is his responsibility to be certain that the facts *are* facts, and that the names of the objects really are the correct names. In this final article, let us look at some of the references that we may use to identify and learn more about the material included in the school museum. The references listed are not the only ones available by any means, but only represent those with which the author is familiar.

For the beginner, various field guide series are recommended, each with different volumes for different subjects. One of the outstanding series is that published by Houghton Mifflin Company. Known as the Peterson Field Guide Series, it is edited by Roger Tory Peterson. The books are cloth-bound and are small enough to fit in a jacket pocket. The following are of interest in North Carolina:

A Field Guide to the Birds by Roger Tory Peterson

A Field Guide to the Shells of Our Atlantic and Gulf Coasts by Percy A. Morris

A Field Guide to the Butterflies by Alexander B. Klots

A Field Guide to the Mammals by William H. Burt and Richard P. Grossenheider

A Field Guide to Rocks and Minerals by Frederick H. Pough

A Field Guide to Animal Tracks by Olaus J. Murie

A Field Guide to the Ferns and Their Related Families of Northeastern and Central North America by Boughton Cobb

A less expensive but colorful illustrated series

This is the final article in this series. The series will be reprinted as a booklet in the near future. An announcement will be made when the booklets are ready for distribution.

published by Simon and Shuster is known as the Golden Nature Guides. These are in two editions, limp and cloth-bound. The paper-backed edition is $1.00, the cloth is $2.50. The entire series is co-authored by Herbert S. Zim, and includes the following titles: *Birds, Flowers, Insects, Stars, Trees, Reptiles and Amphibians, Mammals, Seashores, Fishes, Rocks and Minerals,* and *Weather*. These books are available at some news stands as well as in book stores and provide a basic library on natural history for only a few dollars.

A number of attempts have been made to encompass the entire field of natural history in one or two volumes, but few authors have been equal to the task. Perhaps the best of these was E. Lawrence Palmer, whose *Fieldbook of Natural History* represents a life-time of nature writings. Heavily illustrated, the book touches briefly on every general group of plants and animals. It is well recommended.

The more comprehensive a book is, the more valuable it will be to the student. To be comprehensive within the limitations of size, however, the author must limit his work subject-wise and geographically. Books on North Carolina are few, but these are standard references within the State. Outstanding is *Birds of North Carolina,* now being published in a revised edition by the State Museum. Originally written by T. Gilbert Pearson, C. S. Brimley and H. H. Brimley, the new edition is edited and revised by Harry Davis.

Two monographs published by the State Museum are now available from the Museum or from Carolina Biological Supply Company at Elon College. These are keys to the reptiles and amphibians and to the mammals of North Carolina, and provide checklists as well as brief descriptions. They were written by C. S. Brimley.

The American Indian in North Carolina, by Douglas Rights, is the best recent work on North Carolina Indians. Indian tribes of the State are discussed fully, and many archeological finds are illustrated. The State Museum's Information Circular 1-57 is a brief leaflet illustrating activities of prehistoric cultures. It is free.

Some of the best references are not printed, but rather are living people. The State Museum of Natural History in Raleigh may be called upon for aid in identification of puzzling material. The Museum has many publications available free or for a nominal charge to supplement the personal attention that can be given to the flood of questions that they receive.

Several junior museums are scattered through the State, and their staffs are eager to cooperate with teachers and students. In Rocky Mount the Rocky Mount Children's Museum, directed by Mrs. Mae Bell, serves a large area. The Durham Children's Museum, directed by Mrs. Mazel Lyke, serves the Durham area. Through the cooperation of the Junior League of Greensboro, the Greensboro Junior Museum recently opened under the direction of Walter Marinetti. The Charlotte Nature Museum, directed by James Manley, serves parts of both North and South Carolina. A new museum in Haywood County is being planned as a memorial to Leroy George, a youngster with a great interest in nature. All of these museums, with trained staffs and community resources behind them, welcome the opportunity to cooperate with technical advice and assistance.

Several State agencies and institutions can be called upon for information and assistance. North Carolina State College has experts in many fields, and inquiries directed to the college will be referred to the appropriate individual. The Department of Conservation and Development includes the Division of Minerals, the Division of Forestry, and the Division of Commercial Fisheries. The Wildlife Resources Commission deals with inland fisheries and game.

Every agency and institution that receives inquiries from the general public is familiar with one problem: the person who doesn't know what he wants or how to say what he wants. Most institutional sources of information have printed circulars or bulletins prepared to answer questions most frequently asked. When a student writes, "Please send me everything you have on wildlife," the harassed secretary has the choice of sending a hundred or so leaflets, bulletins, and books. Or she may send him a general leaflet that probably will not answer his questions. Requests for specific information are usually given prompt attention and prompt action by the agency. Direct your questions and your students' questions to the proper agency and in terms of specific questions. And limit your request to a reasonable number of copies of each publication.

Build your museum library and make it available to the students. Use magazines as well as books to extend their knowledge. Encourage them to use references and you will be helping them to understand more of the value of knowledge.

The school museum in action is a chain of events, whereby questions are brought up, answered, and more questions stimulated. And the school museum will have served its purpose when the minds of the children have been opened to wonder about the world around them.

Photo by Jack Dermid

WARM WA STREAM FISHING

By Kenneth H. Johnston
Fisheries Investigator

WHY does Contentnea Creek continue to provide good fishing? Why do catches in Brices Creek continue to decrease year after year? These and similar questions may be heard almost every day in the country stores and barber shops over the state. To better answer these and other pressing questions regarding fish management in warm water streams, the Fish Division of the North Carolina Wildlife Resources Commission has set up a research project on Contentnea Creek in Greene County. This project will continue for a minimum period of three years. It will be financed from Federal Aid funds made available by the Federal Government for this type of research work.

Most of the warm water fisheries investigations in North Carolina up to this time have been conducted on other types of water such as small lakes, reservoirs and farm ponds. It was not that these waters were considered more important, but rather that some of the basic information needed for sound fish management could be more easily obtained from those types of water. A considerable amount of the information received from these investigations will be used along with the information obtained from the Contentnea Creek project to formulate sound management practices for the warm water streams in North Carolina.

Some of the problems which will be studied are the total fish population in the stream, the physical and chemical characteristics of the water, the number and quality of the fish harvested by the fisherman, the rate of growth, food habits, and spawning success of the game fish present, the effect of intensive harvest of bass and minnows, the relationships between rough and game fish, and others which may arise as the project proceeds.

The first basic problem in any fish management program is the water itself. The amount and proportion of certain chemicals and minerals in the water directly affects the fish life present. A careful study of the water quality will be made during the project. Samples will be taken and analyzed on a regular schedule. At certain periods, twenty-four hour studies will be made with samples taken every hour. We hope that this intensive study will provide information on those factors which are beneficial or harmful to maximum fish production.

The physical properties of a stream are also very important to fish production. The depth, width, rate of flow, type of bottom, size and number of pools and riffle areas, amount of brush, logs and other debris in the water, amount of silt carried, and the slope of the banks all have their effect on the number and type of fish that may be found in a stream. Results from a study of the physical characteristics will help in determining if the species of game fish present are best suited for that type of habitat, or whether the introduction of a new species, whose habits are better suited for those characteristics present, would be more desirable.

Intensive sampling of chosen study areas along the various portions of the stream will be made to determine the total fish population. The number of each species and their percentage of the total population will be carefully noted. Most of the sampling will be conducted with a 230 volt electric shocker. The shocker has recently been perfected to the point that it has become one of the most important sampling devices available to the fisheries worker at the present time. Perhaps its most significant advantage is that it provides a less selective sample than other

ER | *A NEW PROJECT HAS BEEN STARTED ON CONTENTNEA CREEK TO PROVIDE ANSWERS ON QUESTIONS OF WARM WATER STREAM FISHING IN NORTH CAROLINA*

types of gear. Results from other projects have proven that certain species of fish are more readily captured than others in gear such as gill nets, seines, and various traps. Small fish such as the various minnows and the young of other species are never captured in nets and traps, whereas the shocker provides a sample of all sizes.

The fisheries investigator may obtain the necessary information from the fish collected by the shocker and then return them to the water if it is so desired. Previously, rotenone was used as a nonselective sampling method. All fish collected died from the effects of the rotenone and were of no use as far as further study was concerned. Also rotenone is difficult to use in a flowing stream due to the drift of the chemical from the sample area. The perfection of the electric shocker has certainly provided fisheries personnel with an efficient time saving tool with which to effectively sample streams and other waters.

If by chance some of you anglers do a little tackle testing in Contentnea Creek sometime in the near future, do not be surprised if you land a few which have a fin missing or a tag hanging from them which looks like a string of spaghetti. Most of the fish taken in samples during the project will be marked by fin clipping or tags and returned to the water. Recapture of these marked fish in succeeding samples will give valuable information on their growth rate, movement, and aid in estimating the total fish population.

Every effort will be made during the sampling operation to obtain data which will give us information on the food habits, rate of growth, and spawning success of the game fish present. Scale samples will be taken and analyzed to obtain the age and growth rate of individual fish. Stomach contents will be studied to find out what is being eaten and to what extent the food supply is being utilized. During the spawning season careful notice will be given to the spawning activity in the stream. Nests will be observed and counted. If conditions permit, underwater studies will be made using aqua-lungs and other diving equipment. To help evaluate the success of spawning and the survival of the young fish, special notice will be given to the young fish taken during the sampling operations. This will enable us to determine if the natural reproduction in the stream is sufficient to maintain a constant supply for the fisherman's creel.

What would happen if all of the bass were removed from the creek? We do not plan to go that far, but several small areas along the stream will be selected for a study of this problem. We will attempt to remove all bass and other fish from these areas. A later study on the areas will provide valuable information on movement of fish back into an area. It will also provide important data on the effects of continued extensive cropping or harvest of bass.

During the sampling operations special notice will be given to the status of the rough fish present, such as carp, catfish, gar, redhorse suckers and others. A study will be made as to their numbers, size, condition, and seasonal variations. Rough fish are known to affect game fish production when they are present in large numbers. We will attempt to determine what the relationship is between the game and rough fish present. Different methods of removal will also be studied to determine the most effective and efficient procedure to remove rough fish if it is deemed necessary.

The anglers who fish Contentnea Creek will be asked to help with the project by submitting a voluntary creel report each time they go fishing. Creel boxes will be placed at points of access to the creek. These boxes will contain creel cards, pencils, and instructions on how to fill out the card. This information can be very helpful if it is reported accurately and completely. This project is for the benefit of you, the fishermen of North Carolina, and we ask your help and cooperation on this matter of voluntary creel reports.

The Contentnea Creek research project has been set up to provide information which will be used to formulate fish management practices in warm water streams. All of the problems involved will be carefully studied and the information received, along with data from other investigations, will be evaluated. Many of the problems now unsolved will have answers. We hope that these answers will do just one thing, provide better fishing for the people of North Carolina.

Wildlife **PRODUCES for NORTH CAROLINA**

WHO KILLED COOK ROBIN?

by W. L. Hamnett

Illustration by Duane Raver

WHAT a revolting development this is:—To think that after all these years there are still people in our state who willfully go out and shoot our song-and-insect-eating birds!

Over two hundred towns in our state are advertised as bird sanctuaries; thousands of school children have been or are now a member of a Junior Audubon Club; thousands of adults belong to organizations or civic clubs which have active and reporting committees on conservation activities; thousands of sportsmen receive hunting regulation abstracts each fall when they buy their license, and still there is an amazing number of people who do not have the self-reliance to deter, minimize or prevent this tragic waste of our avian life. After all, birds have a tough enough time trying to keep abreast of our advancing chemical and agricultural progress.

In the eyes of our wildlife laws only 9 species of birds (2½%) are classed as unprotected:—English sparrow, great horned owl, Cooper's hawk, sharp-shinned hawk, crow, blackbird, jay, starling, and buzzard, and their nest and eggs. The other 97½% of our birds are afforded protection of one kind or another. Of course game birds are protected during closed seasons, but that still leaves 350 birds for which no legal prerogative to kill exists, except in local dispensations.

Now you may say, why all this fuss over such a small matter—a little bird. Well, it was a big enough matter to attract attention above and beyond the influence of our Supreme Court and President. What protection our birds now have is within the effect and influence of two Migratory Bird Treaty Acts with Canada (1916) and Mexico (1937) in convention with the United States. By this way the whim of a generation may not dissolve the accomplishments of proven worth.

Since birds are so busy in their own way, and have little time to read, we must accept the privilege of learning and then applying the protective measures so justly deserved by them.

If you are one of those guilty of taking pot-shots at birds or have friends and neighbors who do so, think a moment about this. The next time you take a bead on a bird and have it lined up in the sights of your gun think about this little bundle of feathers—representative of the inspiration to Keats, Coleridge, Bryant, Audubon, Burroughs, Thoreau, Pearson, Peterson; or, as a salvation to Noah, to Moses, the Mormons, and Farmer Brown; and, as a token of resourcefulness and happiness to the people of North Carolina.

Water is plentiful. Besides the farm pond, several large borrow pits provide the geese with safe retreats. The Stephenson farm is about three miles east of Garysburg.

GOOSE REFUGE

continued from page 7

a serious setback, but as usual the geese returned in greater numbers the next October. Repeated shooting incidents, however, could destroy their past accomplishments.

Today, the Stephensons are exploring the possibility of having their farm established as an official refuge, thus assuring the geese additional protection and respect.

Canada geese are not the only species that take advantage of the food and protection at the Stephenson farm. Blue geese from the Mississippi flyway have appeared from time-to-time, and a snow goose spent the past winter there. A few ducks of various kinds are always present in winter. Nesting boxes for wood ducks are provided to hold that species during the spring.

The people of the community are beginning to

PROTECTOR OF THE MONTH

William B. Peeler

Born in Rutherford County on May 15, 1923, Mr. William B. Peeler graduated from Cliffside High School and attended Gardner-Webb Junior College for one year. He began working for the Wildlife Resources Commission as the Rutherford County Wildlife Protector on October 16, 1950, and attended the Wildlife Protectors' Training School at Chapel Hill, North Carolina in 1951.

Mr. Peeler served over four years in the army, and spent more than three years overseas in the ETO theater. He was discharged as 1st Sgt. in 1947, and received a commission in 1950 as 2nd Lt., NCNG. In 1952, he was promoted to 1st Lt., and is now serving as Recon Officer of Hvy. Mort. Co., 120th Infantry Regt., NCNG.

Mr. Peeler is a Master Mason, K.P., W.O.W., belongs to the American Legion, and is a member of the Race Path Baptist Church. He is married to the former Bonnie Hamrick of Cliffside, North Carolina, and has three daughters. The Peelers reside at Route 1, Mooresboro, North Carolina.

ENFORCEMENT RECORD FOR MARCH

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of March, 1958.

Persons checked	28,432
Total prosecutions	286
Total convictions	283
Total cases not guilty	0
Total cases nol prossed	3
Total fines collected	$2,636.60
Total costs collected	$1,983.70

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW

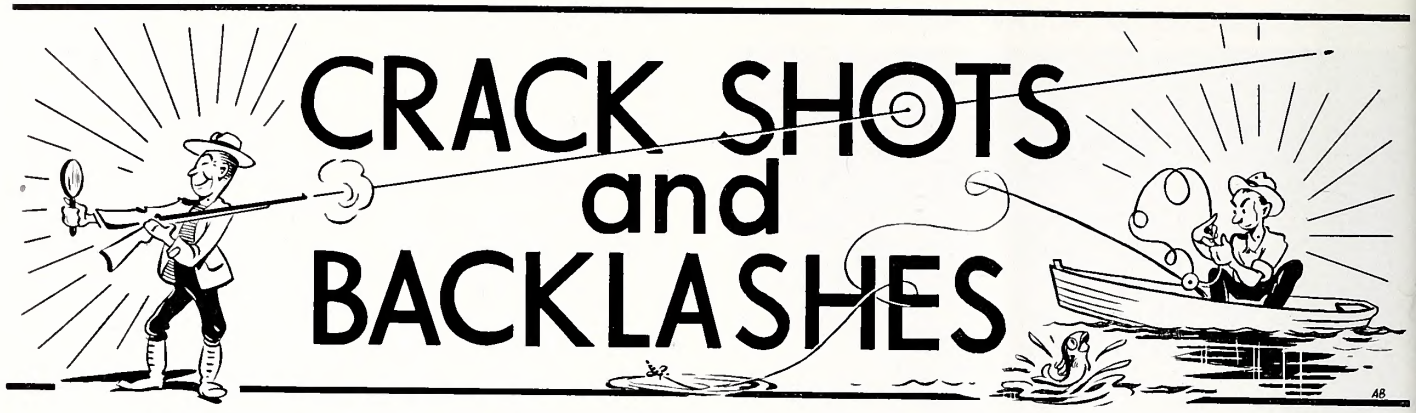
QUESTION: Does a man need a fishing license and a net license to net herring and shad during the open season in inland waters?

ANSWER: If a person is fishing for shad and herring with a skim net, dip net, or other special device and is not using any method of hook and line fishing, only a net license is required.

get geese conscious. They look up from their winter chores to watch a passing flock or thrill at the call of wild geese on moonlight nights. They slow down their cars as they pass the Stephenson place to get a better look at the noble birds which have chosen Northampton County as their winter home. The word is spreading about the presence of the geese. Teachers from local schools are bringing their classes to give the youngsters a better appreciation of wildlife and conservation. People are appearing on Sunday afternoon drives, and on the day these pictures were made, three carloads of Brownie Scouts came to see the birds. The refuge could well become an important wildlife educational medium in the area. Sportsmen would eventually benefit, too, for some of the geese will spread out into surrounding areas where hunting is permitted.

The rapid increase of the goose population has been greater than the early growth experienced at Gaddy's Wild Goose Refuge in Anson County after the first nine geese appeared there in 1934. According to Mrs. Lockhart Gaddy, it took five years of patience, food, and protection to get the first 100 geese to spend the winter at Gaddy's Pond, while at the end of six years over 1,000 birds were present at the Stephensons. Perhaps North Carolina has another Gaddy's Pond in the making. Only food, protection, and time will tell—but here's wishing the Stephensons and their geese the best of luck.

Wildlife **PRODUCES**
for NORTH CAROLINA



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

The following item is lifted from the CATAWBA SPORTSMAN, news letter of the Catawba Wildlife Club. It reflects a trend in the thinking of Tar Heel anglers who had an increase in their state and combination fishing licenses, and who are aware that about 200,000 anglers each year are exempted from any fishing license whatever —those who fish in their county of residence with natural bait.

"Money from the Dingell-Johnson Act is apportioned to the various states based on fishing licenses sold in the states. (Also on the area of available inland fishing waters.—Ed.) This money is a return to the states of a federal excise tax on fishing tackle. North Carolina ranks tenth in population in this country and you naturally would think that it would rank tenth in fishing licenses. (North Carolina ranks fourth in the amount of fishing water under D-J provisions.—Ed.) But, under our archaic fishing license requirements, all of the following states received more money than did the Old North State: *Alabama, Arizona, Arkansas,* California, *Colorado, Florida,* Illinois, *Iowa, Indiana,* Michigan, *Minnesota, Montana,* New York, Ohio, *Oregon, Oklahoma,* Pennsylvania, *Tennessee,* Texas, *Washington, Wisconsin.* Those in italics have a smaller population than we have. The "progressive" state of North Carolina certainly doesn't rank very progressive in this respect. Our fishermen are certainly not getting a fair share of their tax money in return. North Carolina received $77,969.00 while Tennessee received $121,-230.00. This is money you have paid in taxes and are entitled to have returned. Let's get our fair share."

Two forces are building up in North Carolina, or for that matter, the eastern seaboard, that can go in either of two directions. These forces can work together for the common good, or they can oppose each other and stir up a situation that might cause no end of controversy and hard feelings.

An association of sports fishermen in Pennsylvania proposes to expand up and down the coast for the purpose of having the rockfish or striped bass placed on the game fish list in all states where it is indigenous, and prohibit the taking of the species commercially. Such a move would naturally be somewhat unpopular with commercial fishermen. Somewhere, and soon, there must be a meeting of minds. The following correspondence sheds some light on the question.

Dear Sir:

"By going to see the management at TV-WITN, I was able to get the information I needed on the matter I called you about. There was a UP story stating that the Rock Fish Anglers Association of Pennsylvania was forming the Atlantic States Marine Sportsmens Association with the sole purpose of having the rock fish declared a game fish in all states on the seaboard. The first meeting of this group was scheduled in New York on February 22.

"You may have seen in the paper the action I took at the Edenton meeting of C & D Fisheries Committee regarding this ridiculous move. I pointed out there that the right of a man to earn his living in the place he lived far superseded the privilege of a man to take his pleasure in the same place. That is the position of this Association in any conflict which might come up with sports fishermen.

"No doubt you will be hearing about this move further, and I will very much appreciate getting from you any information that may come to your desk regarding it.

"Next time you are through Kinston stop by and we will have lunch.

Cordially yours,
Fred A. Whitaker,
Executive Secretary
N. C. Fisheries Ass'n.

Dear Fred:

It was good to hear from you, and to learn that you got the meeting you asked about nailed down. Mr. Patton and I have been discussing this problem, and we agree wholeheartedly that putting striped bass to the sole use of sports fishermen would be unfair to the people who make part of their living from this fishery.

Instead of a knock-down-drag-out hassle over the question, it seems to us that the two groups ought to get together and do something constructive regarding the striped bass fishery. Records show all too clearly that the striped bass population is diminishing seriously; the only way the species can be saved is through rigid regulation of both the sport and commercial harvest, plus defense and restoration of the spawning grounds.

Over the years the Wildlife Commission, using funds from sport fishermen in the form of license money, has spent thousands of dollars operating the only striped bass hatchery in the world near Weldon. It has spent thousands more battling federal and private power interests to get enough water in the Roanoke River during the spawning season to allow the fish to spawn naturally. There is still a running battle going on in the matter of getting a supply of sufficiently oxygenated water. Rockfish have been reestablished in other major rivers, largely due to the hatchery operations.

At present we are conducting an extensive scientific survey of the Roanoke spawning grounds to learn what is needed to improve conditions. Over the years, sports anglers have taken the initiative

in over-all fish conservation, and where anadromous fish such as the stripers are concerned, it seems that the commercial fishing interests should lend a hand; otherwise we are in danger of losing both the sport and the livelihood involved with these species.

I didn't mean to preach a sermon, but you are in a wonderful position to get something constructive done about this situation, from both the commercial fishermen and the state and federal agencies concerned.

Please let us know if we can give you a hand.

Sincerely,
Rod Amundson

"Dr. Charles G. Hamaker, President
Rockfish Anglers Association of
Pennsylvania, 224 North Duke Street
Lancaster, Pennsylvania

Dear Dr. Hamaker:

"It is our information that your Association is initiating a movement for formation of a larger inter-state Association with the purpose of having the rockfish declared exclusively a game fish. This Association is naturally very much concerned at such a move, but at the same time we offer you our cooperation as well as to others in the conservation of any species of fish which now inhabits our waters.

"You may know that the commercial take of rockfish in our State is as old as our whole history. To bar commercial fishermen from this sea product would bankrupt much of our whole northeastern coast.

"Our position in the matter, of course, is that a man has the right to earn his livelihood in the place he lives before it is the privilege of a man to indulge his pleasure in that same place.

"We are much concerned for the conservation of this fishery, and have talked with officials of our State Wildlife Resources Commission about it. They agree with us that to put the striped bass on a game fish basis would be unfair to the people who make at least a part of their living from that fishery.

"There are other problems involved as well as the taking of the fish itself. In North Carolina there are the problems of sufficient water in the spawning streams and the effect of industrial pollution of those waters. These problems as well as the expansion of a hatchery operation, are under continuing study in North Carolina.

"We offer you our cooperation in the solution of the problem, but we certainly will oppose any effort to have this fish barred to commercial fishermen. May we hear from you.

Sincerely yours,
Fred A. Whitaker

"Dear Sir:

"I would appreciate the following information for my personal benefit. Is there a fly line that is definitely non-sinkable, that is without the use of wax or dressing. I fish with a fly rod quite often using the popping bug (cork) hook size Nos. 6, 8, and 10, for bass and bream. I use a South Bend 8½ foot rod and South Bend Automatic reel. What size line and what kind of line would you recommend for this type of fishing? I would like to use a non-sinkable line if they are good for this purpose. I would also like to know where they can be purchased.

"Thanking you for the above, I am

Yours very truly,
William L. Whitley,
Murfreesboro

Mr. William L. Whitley
104 S. Second Street
Murfreesboro, N. C.

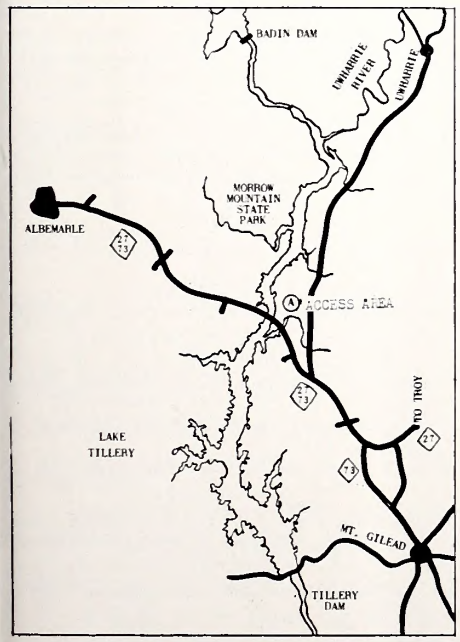
Dear Mr. Whitley:

Your letter containing the question about the floating fly line has been referred to me for reply. The topic of "non-sinkable" fly lines has received a lot of discussion the last few years and the arguments about which is the "best" such line will probably continue for some time. Actually, the line to which you refer is made by most of the leading line companies in various modified forms. However, none of these so-called hollow, floating lines are completely "non-sinkable." There is little question that the present day hollow core, bonded finish fly lines are the best type of fly line ever produced, and most will float without dressing for several hours of normal water conditions. Personally, I prefer to use a silicone line dressing on these lines before each fishing trip. Much of the floating qualities of any fly line depend on the amount of surface tension of the water in which the line is used; for example: where quantities of pollen or dust or other surface scums are present, even the best floating lines will go down. The best procedure seems to be purchase the best floating, bonded finish line possible, use the cleaner recommended, and dress it each trip.

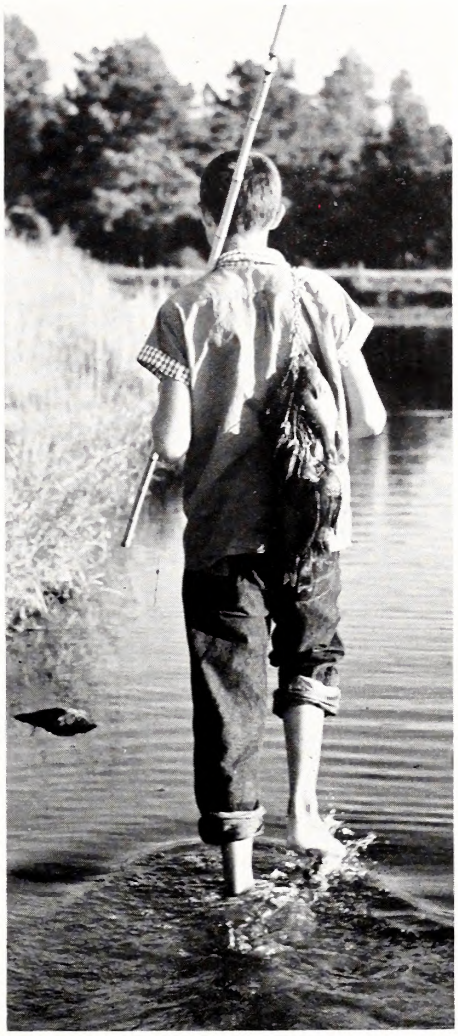
If you are planning to fish with cork bodied popping bugs with your 8½' fly rod, you may find that a "forward taper" fly line will give you added distance in casting. However, the cost of such lines is much greater than either the double tapered type or the level lines. For example: A GBF line will cost around $11.00 in comparison with about $6.00 for HCH double tapered line and from $2.00 to $3.00 for a C level line. Generally, unless you are interested in distance casting with extreme precision, a level line (in your case a C level line) is satisfactory for all around fly fishing. I have used many of the "name brand" lines and have found the Cortland "333" hard to beat.

If we can be of further help to you, please let us know.

Very truly yours,
Duane F. Raver, Jr.
Federal Aid Coordinator



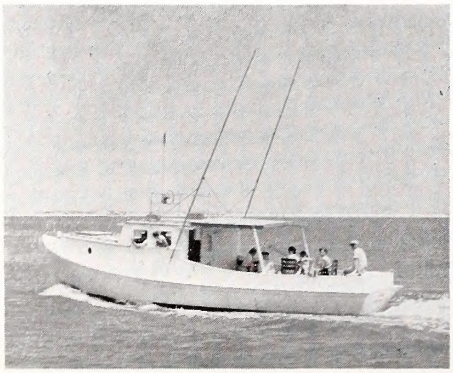
One of North Carolina's newer fishing access areas is Tillery Lake, located on Swift Island in Montgomery County. The area is just off N.C. Highways 47 and 73 between Albemarle and Mt. Gilead.



The magic days of May are here. Birds are nesting, flowers blooming, and sandy shores feel good to barefooted boys. Fish are biting just about everywhere. Let's go!

Photo by Donald S. Heintzelman

Farmer's friend, the red-tailed hawk deserves better treatment than he receives from many people. Bob Dance's back cover on hawks shows how to recognize the different hawks in flight by their silhouettes.



May marks an upturn in the charter boat fishing off the coast, when sportfishermen take to the deep blue.

Dear Sirs:

I am going to build a fish pond, and in doing so I began to think about the trouble everybody else is having with the fish dying from the poison used for spraying tobacco with airplanes. I began to wonder if something can be done about this. Why can't a poison be made to kill the tobacco worms and not kill the fish.

Not only is this poison killing fish in ponds, but in small streams as well, in every section of the country where tobacco is being sprayed with airplanes.

If some chemical can be made to kill the tobacco insects and not kill the fish it will be a great help. I have talked to a lot of pond owners and they all say the same. If this poison can be made in time to use this year it will outlaw the other poisons as everybody will want to use it.

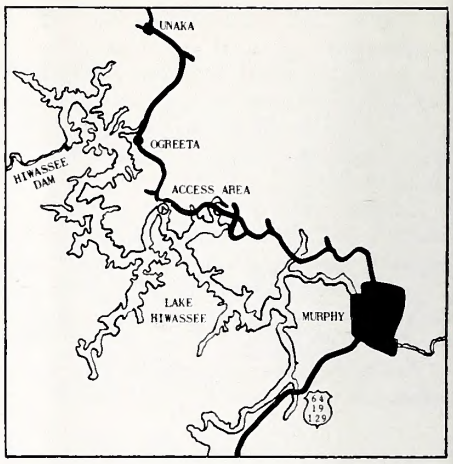
Respectfully yours,
J. T. Crowder,
Virgilina, Va.

Dear Mr. Crowder:

We agree with you that it would be most desirable if we could have a spray for tobacco and cotton which would not kill fish. There is no doubt that the indiscriminate spraying of these crops has killed millions of fish each year.

Sprays which are components of benzine hexachloride or its derivatives seem to be the most effective ones the farmers can use. Perhaps our agricultural colleges, in cooperation with the chemical companies, are the ones who should be called on to develop an insect spray which will not kill the fish by subsequent run-off. We know of no such spray at this time.

Very truly yours,
J. H. Cornell
Chief, Fish Division



To reach the new Hiwassee Fishing Access Area, follow Tennessee Street off U.S. 64 north from Murphy toward Unaka.

Dear Sirs:

Mr. Ralph Daniel of Durham has asked me to send you a list of the winners in our recent field trial held at the Sandhills Wildlife Management Area, at Hoffman, North Carolina.

I am enclosing the stakes with the winners and owners of the dogs.

Yours truly,
Dr. Carl B. Wolfe,
Sec.-Treas. N. C. Field
Trial Association

Amateur Derby

1. Queen Bee Delivery, J. C. Little, Oakboro, N. C.
2. Mr. Sensation, Joe W. Bales, Thomasville, N. C.
3. Royal Genius, Joe W. Bales, Thomasville, N. C.

Amateur All Age

1. White Savage, Harold Garmon, Reading, Penn.
2. Tip Top Tim, W. C. Chaney, Sumter, S. C.
3. Oak Hall King, Vernon Wimbrow, Oak Hall, Va.

Open Puppy

1. Rambling Rebel Jack, John Culp, Charlotte, N. C.
2. Babe, Fred Arant, Barnwell, S. C.
3. Woodruffs Sue, Howard Woodruff, Boonville, N. C.

Open Derby

1. Rambling Rebel Dan, C. A. Crawford, Binghamton, N. Y.
2. Haberdasher's Crestliner, Dr. W. H. McCall, Asheville, N. C.
3. Royal Genuis, Joe W. Bales, Thomasville, N. C.

Open All Age

1. Home Again Mike, W. C. Jones, Franklin, Va.
2. Paul Bunyan, Robert S. McGran, Dunkirk, N. Y.
3. Oak Hall King, Vernon Wimbrow, Oak Hall, Va.

"Dear Sir:

"I have lived in this section of North Carolina all of my life, and I saw something yesterday for the first time, a white robin. I am sure it was a robin because

we watched it for about two hours. It was in a group of eight, the feeding, movements, and calls or calling were the same. I do not know if that is a rare bird or not, but I see hundreds of robins each year but this is the first time I have ever seen a white robin.

Yours truly,
Allen L. Lawrence
Apex, North Carolina"

From the description, this seems to be an albino. Not rare, but uncommon. Albinism is the lack of normal pigment in vertebrates.

—Ed.

"Dear Sir:

"Instead of having legal protection I think the migratory robin should be outlawed, or at least classified as a game bird with a long open season and no bag liimt. These birds are so damaging to nurserymen. As a nurseryman myself, I know for two years in succession the crop of holly berries here was destroyed by late spring frosts, but the trees set heavily with berries last spring and this time, the first in three years my holly trees were really beautiful. I have large specimen trees of ilex opaca on my lawn, and many out in the field for sales purposes. I have nearly one hundred trees ranging in size from five to eighteen feet tall, and many smaller ones. Not long ago the pesky robins swarmed in by the hundreds and in just three days every tree was completely stripped of all berries from the tips, all the way to the ground, by these gluttonous and ravenous eaters.

This means a real financial loss to me. People buy holly for the berries and there is little chance to realize as much from a stripped tree as one red with berries; although the prospective buyer may be assured that it is a berry bearing tree, most people want a tree with berries on it when they buy. Since all my trees have been stripped clean of all berries, I think most of them, even if not all, will remain here in the nursery until they produce another crop. I hope you will give this full consideration as I feel the migratory robin numbers should be drastically reduced. Thanking you.

Yours very truly,
J. Bright Andrews,
Chapel Hill, N. C."

P.S.

"Above statements apply to every winter when I have a crop of berried holly. By long open season I mean long enough to fully cover all the time these birds might be around. Besides the financial loss there is the loss of the beauty of all the holly trees on the lawn."

Robins concentrate in huge flocks in North Carolina during the winter, and a concentration of any species is likely to have at least locally detrimental effect. WILDLIFE doubts, however, that public sentiment would have the robin taken off the protected list. At the present time they are protected by state and federal law as well as international treaty with Canada and Mexico. Perhaps someone can suggest a repellent to protect Mr. Andrews' hollys. The City of Raleigh successfully solved its starling problem by dangling feather dusters from downtown buildings.

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HAWKS

Showing the four families and their means of identification. The silhouettes are not to scale but show the design variences of each family.

R B DANCE 58

LONG POINTED WINGS

LARGE HEAD

FALCONS

LONG TAIL

SPARROW (KESTREL) HAWK
PIGEON (MERLIN) HAWK
DUCK (PEREGRINE) HAWK

BROAD WINGS

HEAVY BODY

BUTEOS

BROAD TAIL

BROAD-WING HAWK, RED-TAILED HAWK, RED-SHOULDERED HAWK, ROUGH-LEGGED HAWK

LONG ROUNDED WINGS

HARRIERS

LONG TAIL

MARSH HAWK

SHORT ROUNDED WINGS

ACCIPITERS

LONG TAIL

COOPER'S HAWK
GOSHAWK
SHARP-SHINNED HAWK

FOOD HABIT STUDIES PROVE THAT MOST HAWKS ARE BENEFICIAL — DO NOT NEEDLESSLY SHOOT

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North Carolina State Library
Raleigh

Wildlife

JUNE-1958

TEN CENTS

in north carolina

Photo by Jack

New Life for the Out-of-Doors

Baby birds, which are abundant in our fields and woodlands these days, are symbolic of the productivity of nature. They are bright-eyed replacements for the casualties of the passing year, replacements for the victims of winter's cold, starvation, predation, accidents, disease, and old age. These four youngsters—standing "eyes left" as if by command—are cedar waxwings just out of their nest near Mt. Mitchell. The cedar waxwing is a fancy bird with a yellow-tipped tail and conspicuous topknot. It is most commonly seen in winter, in small flocks that fly from perch to perch with military precision.

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Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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THURMAN BRIGGS, *V. Chm.* ..... Lexington
ROBERT M. CARR, *Sec'y* ..... Wallace
G. E. BEAL ..... Red Oak
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COVER

The opossum is a curiosity. It resembles a big rat, but is actually a marsupial, a mammal with a pouch for carrying its young. The opossum has 50 teeth, more than any other Tarheel mammal, a prehensile tail, and a grasping thumb on each hind foot. It can feign death or eat almost anything. At birth, the baby opossum is about the size of a navy bean, a mere embryo that makes its way to the pouch to attach itself to one of the 13 nipples, there to grow for about 60 days. Then it begins to venture out between meals to ride piggyback and is weaned when about 90 days old. The opossum has a small and primitive brain, yet it has been able to survive environmental changes through the ages that have led to the extinction of less adaptable species. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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HIGH ROCK Bass Fishing To Improve?

By Heath Thomas
Salisbury Post Staff Writer

Will bass fishing in vast High Rock Lake be better this year?

Heath Thomas, outdoor writer for the Salisbury POST, takes a look at the situation . . .

LEXINGTON—There is going to be better bass fishing in High Rock Lake this spring.

Take this, Mr. Piedmont Angler, with a creelful of reservations. It may not really get into high gear until 1959.

The erratic willingness of High Rock bass to eat a wad of gang hooks with food that consists of artificial flies and minnows is an old story to most Piedmont anglers.

The prospect of better fishing in 1958 (pardon '59, perhaps) is based on a stack of statistics that have been gathered and put in order by 29-year-old Don Baker, fish biologist with the Wildlife Resources Commission.

High Rock His Problem

Baker's full-time assignment is High Rock Reservoir. And more fishing pleasure for Piedmont anglers is what he has leveled his sights on.

The Commission's test tube and microscope task force has been looking for several years into the home life of High Rock's fish population. A fisherman of prudish nature would blush at what is going on.

If compared to High Rock's reproductive fish, the *Lepus cuniculus* (rabbits, if the dictionary is not handy), look like the original exponents of birth control.

There have been years, however, when the bass hatch has been admittedly poor. The erratic productiveness of High Rock, when reduced to the number of game fish landed with rod or cane pole, has, throughout the history of the lake, brought both joy and misery to the fisherman.

Big 1956 Bass Hatch

Now about that better fishing prospect. Six coves sampled in High Rock in late summer of 1956 for that year's spring hatch showed 898 small bass per acre.

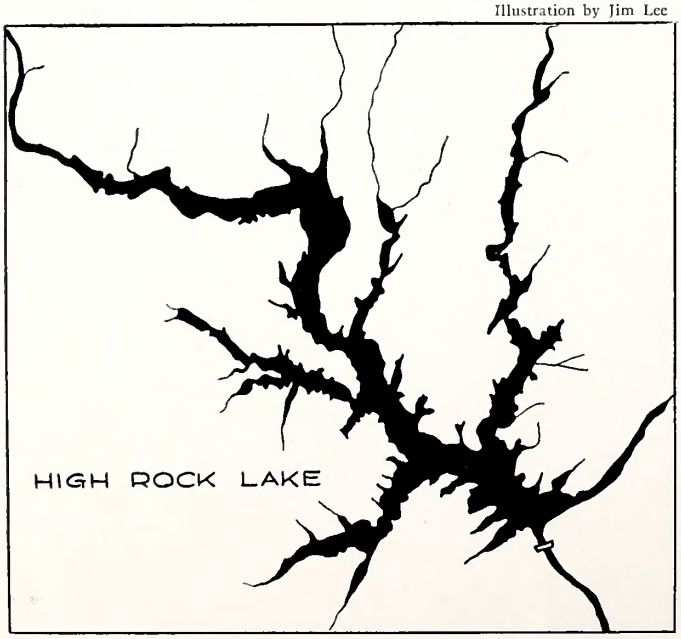
Compare that with the 1956 small bass per acre in these other Yadkin-Peedee reservoirs: Badin Lake, 92; Falls Lake, 44; Tillery Lake, 46, Blewett Falls Lake, 141.

The factors of course, are unanswered. Survival is one. Another is: Have conditions in High Rock been good enough to bring the big 1956 hatch up to legal length?

Piedmont anglers used unusually quaint ad-

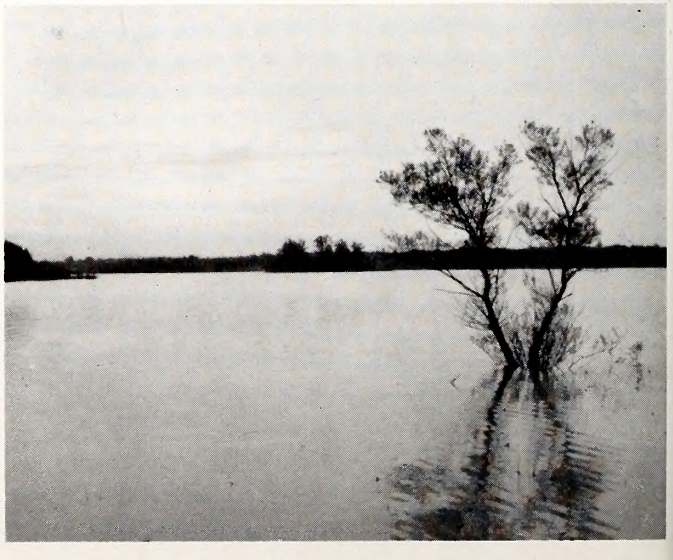
High Rock Lake is one of the Piedmont's larger power reservoirs, covering 15,750 acres in Davidson and Rowan Counties.

Illustration by Jim Lee



Creel checking is being done at popular areas such as Crane Creek in Rowan County, a couple of miles east of Salisbury.

Photo by Heath Thomas



Salisbury Post Photo

jectives last year to describe the bass famine that hit High Rock. Though few people outside the fraternity ever credit a fisherman with telling the truth—the fisherman were right.

According to creel checks, High Rock fishing in 1957 was four times worse than in 1956. Boat fishermen last year caught about one bass every 40 trips. In 1956, he took one every 10 trips.

Creel Checking Station

The creel checking station, two in Davidson and two in Rowan, are operated from March 15 to July 15. The checkers in Davidson work at Flat Swamp and Abbott's Creek, in Rowan at Crane Creek and Dutch Second Creek.

The checkers work staggered hours in an effort toward collecting uniform data. Even so, the statistics are admittedly incomplete.

Possibly far more bass than the checkers ever see are caught by anglers who are access to the lake through private property that is off bounds to the general public.

The recently established public access area at the Bringle Ferry Road Bridge on Dutch Second Creek is the only spot in Rowan that a boat may be launched except from private property. In Davidson a number of recreational areas where boats may be launched are operated as business enterprises.

More Fishermen

Though bass fishing was destitute last year, twice as many people fished in 1957 as did in 1956. The factor here was a far better water level in 1957 which gave easier access.

One result of the easier access, brought by the higher water level, was a much bigger catch of crappie. In 1957 the creel checkers counted 127,000 crappies, nearly three times as many as were taken in the better bass year of 1956.

Creel limits on crappie were long ago abolished for High Rock.

The crappie population is almost incredible. Baker told about stopping at the Dutch Second Creek Bridge in Rowan last year soon after he was assigned to the High Rock project.

Baker asked a fisherman how they were biting. The fellow pulled up a string of more than 300 crappie that reached from bridge to water.

Crappie Unlimited

The dense crappie population certainly seems one factor that cause bass to spurn to artificial lures of anglers. It's sort of like asking a diner to order K-rations when there's beefsteak on the menu.

Sunfish, catfish, carp, white perch are also plentiful. The dense fish population is one of the chief reasons that the Commission is trying to introduce white bass.

A few white bass, apparently newly hatched, were recovered last year in one Davidson cove. And now the fish biologists are waiting with crossed fingers for the white bass to appear in numbers that will make anglers happy.

More Research

Meanwhile, Baker, with a BS degree topped off with a master's in wildlife management, both courses completed at N. C. State College, will continue to hunt methods that will result in better fishing in High Rock. One project involves baits to determine what is most effective in luring catfish into a basket.

Another project will determine the effectiveness of brush harbors. Eleven of these, constructed of poles and matted brush, have been sunk and marked with buoys in Davidson backwaters.

Flatfish usually congregate in such shelter. And if bass are present, some will lurk around the fringes. Results will be collected and complied.

Map In Making

Another project of Baker's is preparation of a map covering the whole lake area. It will show roads, access areas, the best type fishing along the stretches of shore and in the many coves. When he has completed the original it will be printed by the Commission and made available to the public.

An angler, a gunner and an archer, Baker hit on his profession quite by accident. The Four Oaks native enrolled at State to study electrical engineering.

Then he learned that State had a wildlife curriculum. "This is for me!" he exclaimed.

And if he brings some order into High Rock's spotty fishing pattern he should be knighted and elected to a special piscatorial hall of fame.

Does Death Stalk the Uwharrie Herd?

An over-browsed pine seedling—an indication of a severe food shortage—stands as a cross beside the skeleton of a deer that did not survive the winter.

A Study in Deer Productivity

By Frank B. Barick
Chief, Game Division
Photos by Jack Dermid

INADEQUATE HUNTER HARVEST = TOO MANY DEER = RANGE DESTRUCTION = REDUCED PRODUCTIVITY AND WASTE

RECENTLY developed methods of wildlife research are paving the way for more efficient management of our deer herds. This is being done by new techniques which provide information on annual inventory and rate of stock turnover, which is just as important in game management as in business. Without fairly accurate methods of taking inventory sound conservation requires that harvest be held on the conservative side. But with accurate periodic inventory, harvest can be geared to actual population, and loss to natural causes converted to legal harvest for the benefit of our sportsmen.

Much of the research work on improvement of inventory methods has been done on the Uwharrie Wildlife Management Area in Montgomery County. The Uwharrie is also one of our most intensively managed areas from the standpoint of habitat improvement. As a result of this work and a very effective protection program we have built up a very large herd on this 13,000-acre area.

Population levels and condition of the deer have been under close scrutiny by biologists for some time. Complete counts of all deer on two sample areas have been made each spring for the past three years and in the fall of 1954 just before the refuge was opened to hunting. Careful check has been made of all kills for the past four years. Age, size, and condition of each animal were also recorded. Bones of animals found dead have been examined for fat content of the marrow—an index of deer condition at time of death. Ovaries were collected from doe deer to determine reproductive rate, which is affected by the quantity and quality of food available.

Population Levels Reconstructed

While observations to date do not give as complete a picture of population composition and turnover as we would like to have, we believe that we have enough to provide a fairly accurate trend. We have attempted to sketch five years of herd history in the chart below. Just as archeologists reconstruct models of dinosaurs from bone fragments, we have

attempted to reconstruct a picture of the Uwharrie deer heard from various types of field observations and recorded data.

Total early spring population figures were secured by driving all of the deer out of selected sample areas and counting them as they ran out. Each of the two sample areas was completely surrounded by a crew of about 70 men, half of whom "drove" the deer across the "count line." This is the most accurate deer census method known and is widely used by field biologists.

As shown on the chart, these early spring populations ranged from a high of about 2000 in 1954 to a low of about 1100 in 1957. The high population amounts to about 6 acres per deer and the low to about 11 acres per deer. Good forest deer range farther north carries about one deer on each 15 acres. If we use this scale, the normal herd for Uwharrie would be only about 800 deer or about half of what it has been. A very important factor in this case however, has been the creation of about 120 acres of permanent pasture over the entire area. This undoubtedly explains the unusally large population since the 15 acres per deer figure is based on completely forested range.

Size of Population Affects Food Supply

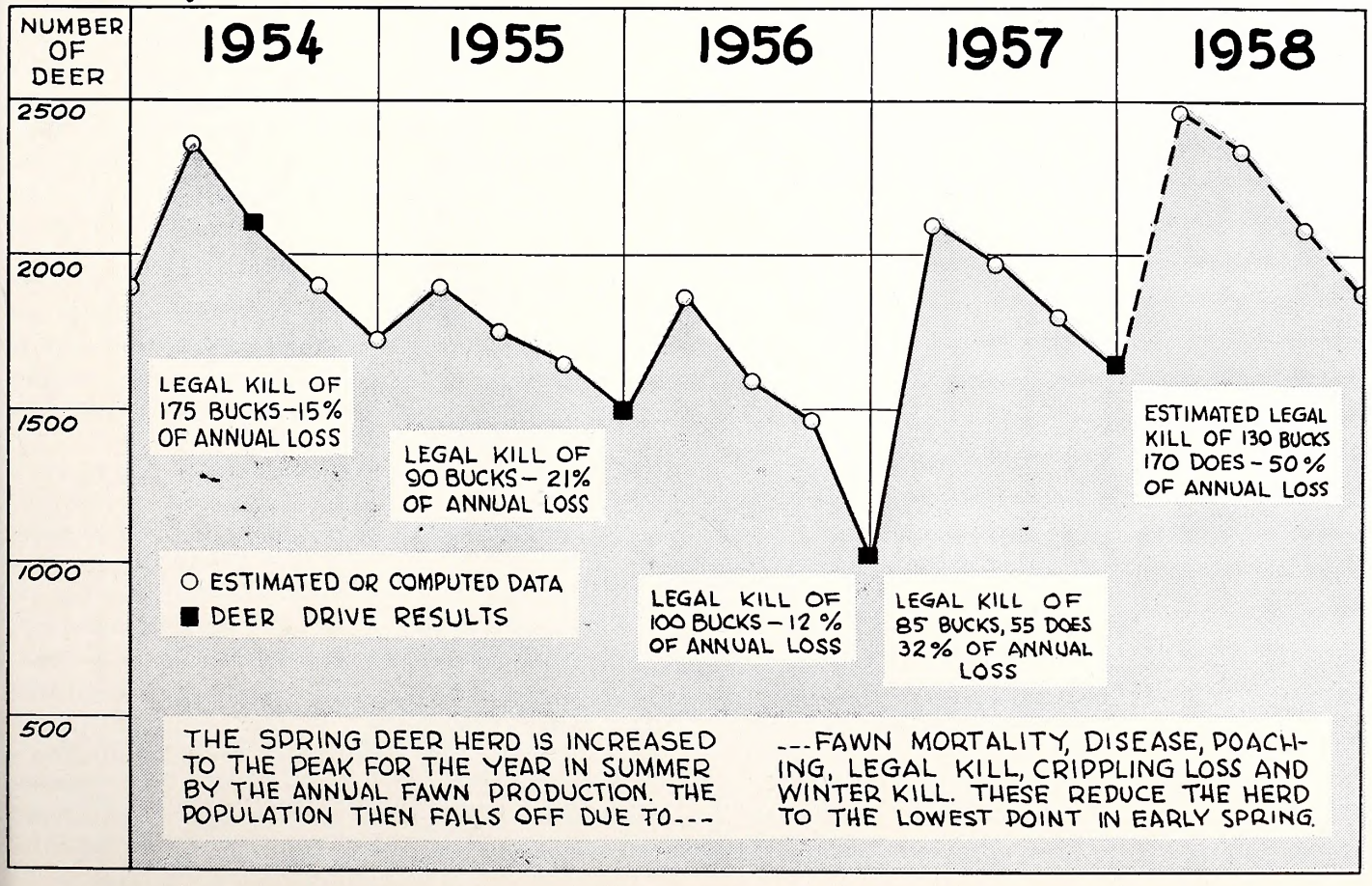
On areas such as Uwharrie where the deer are given almost complete protection from poaching and dogging the population can very easily increase to the point where the food supply becomes critical. There are several signs that this has occurred in spite of the large acreages of pastures planted for the deer. Size of deer is one good index and our records show that Uwharrie deer are considerably smaller in each age class than deer from the western part of the state. Condition and quantity of browse-size trees and shrubs is another indication. On the Uwharrie a browse line is obvious on all honeysuckle and most of the trees and shrubs.

The situation is aggravated by the fact that many sections have grown out of the browse producing stage, and areas where browse-size shrubs and trees still occur have been depleted. In many places the deer fed on young pine trees during the extended cold period last winter. This is usually taken as a sign of severe food shortage since pine is not a preferred food. The food-population problem can be solved in either or both of two ways: 1) reducing the herd, or 2) conducting logging operations which will create more browse. A combination of both approaches would be desirable in this case.

Food Supply Affects Reproductive Rate

Quantity and quality of food not only affect the condition of the deer,—they also affect the rate at which they increase. On good range deer reproduce at the rate of about 2.0 fawns per adult doe per year, about 1.5 fawns per yearling doe, and about 0.35 fawn per fawn doe. On overpopulated eaten-

The Ups and Downs of the Uwharrie Deer Herd



Food is out of reach in those areas of the Uwharrie range that have grown out of the browse producing stage. Natural losses should be converted to hunter harvest.

out range this drops considerably. Examination of ovaries of Uwharrie deer showed reproductive rate reduced to the following levels: 1.25 fawns per adult doe, 1.0 fawn per yearling doe, and 0.16 fawn per fawn doe.

Carrying these observations one step further, and making a few calcuations, it becomes apparent that if we reduce the breeding population the breeding rate goes up. It has been said that a deer population resembles a coil spring in that the greater the pressure against it in the way of harvest, the greater pressure it exerts in the way of reproductive rate—provided food conditions are adequate. The computation below shows that a healthy well-fed herd of 1000 deer would produce as many fawns as 1600 poorly fed deer on over-browsed range. Furthermore, if the breeding population were controlled at the 1000 herd level the animals would not be as subject to disease or other natural losses.

Assuming a normal age and sex composition as follows:

	Fawns	Yearlings	Adults	Totals
Males	15 %	10 %	20 %	45 %
Females	15 %	10 %	30 %	55 %
Totals	30 %	20 %	50 %	100 %

Then a herd of 1000 deer would be composed as follows:

	Fawns	Yearlings	Adults	Totals
Males	150	100	200	450
Females	150	100	300	550
Totals	300	200	500	1000

On a good range the females in a 1000-head herd of deer would produce fawns as follows:

	Fawns	Yearlings	Adults	Totals
Females	150	100	300	550
Reproductive Rate	.35	1.5	2.0	
Fawns Produced	50	150	600	800

On a poor range the females in a 1600-head herd would produce fawns as follows:

	Fawns	Yearlings	Adults	Totals
Females	240	160	480	880
Reproductive Rate	.16	1.0	1.25	
Fawns Produced	38	160	600	798

The tremendous reproductive potential of the herd is demonstrated in the 1957 segment of the chart. To have increased from a spring 1957 population of 1062 deer to a population of 1681 in the spring of 1958 indicates that the herd must have nearly doubled with the 1957 fawn drop.

Natural Losses Can Be Very High

Perhaps one reason for the high reproductive rate in deer is to make up for the potentially high mortality rate. The chart traces the great fluctuation in numbers of deer on the Uwharrie area. Some idea of the possible magnitude of natural loss is demonstrated in the figures for 1955. We did not conduct a deer drive in the spring of 1955 since we had one in the fall of 1954. The indicated spring population was plotted on the assumption that it would be somewhere between the 1954 and 1956 figures or about 1700 deer, but if we compute the spring population from the fall kill (fall kill of bucks averages 7.7% of preceding spring population) we get a population of about 1200 deer. This is a difference of 500 deer.

Most of this difference of 500 deer represents a loss due to natural causes. The summer of 1955 was the year disease hit Uwharrie. It is almost inconceivable that we lost 500 deer that summer since only a few dozen carcasses were found. But then it is almost inconceivable to most deer hunters that we have had from 1000 to 2000 deer on the area—especially when they think of the long hours they waited just to see one.

This exemplifies a biological principal of which few of us are aware: The numbers of any species of game are manyfold more than we see. Even when we leave the field disappointed with our luck,

the chances are that we passed by a good number of potential targets. This discrepancy between what we see and what is there is a product of at least two factors: 1) the imperfection of human vision, and 2) the wariness of the animal being hunted. This, of course, constitutes a very valuable safety factor since if we were able to see every animal in the woods they would soon be completely wiped out.

Certain natural losses are inevitable—especially those immediately after birth. We know that a large proportion of the young of mourning doves, quail, rabbits, and squirrels are lost soon after birth. We seldom see a dead fawn, but then we do not find dead young of small game either. They are apparently consumed by scavengers very promptly: foxes, dogs, raccoons, opossums, buzzards, maggots, beetles, mice, soil microorganisms, and fungi. Loss before birth has also been observed in wild animals. In some cases the embryo is resorbed and is other cases the mother aborts the fetus.

Another significant loss is the result of crippling during the hunting season. In most states this amounts to at least 15% of the legal harvest. It is, of course, always much higher when kill is restricted to one sex or the other, hence buck laws are especially guilty of causing this kind of waste. In Wisconsin, during season in which only forked-horn or large bucks were legal, this crippling loss was greater than the legal take.

Natural Losses Should Be Converted To Harvest

The Uwharrie figures indicate a fairly close relationship between the fall harvest of legal bucks and the population the preceding spring. As indicated above, the fall kill averaged 7.7% of the preceding spring population. A similar relationship has been found through studies on other states. If the average normal spring increase after fawn mortality amounts to 25% of the breeding population we are left with a balance of 17% to dispose of. What

↑ **The grass in this permanent pasture has been heavily utilized by deer. Compare with the lush growth inside the exclosure. About 120 acres of maintained pasture give the food supply at Uwharrie an important boost.**

→ **Uwharrie Refuge Manager Ollie Thompson checks deer utilization of honeysuckle where a browse line is obvious. All leaves are gone as far up as deer can reach. Quantity and quality of food affects the reproductive rate as well as the size and health of deer.**

should we do with this 17%? Should we keep on adding it to the heard? This is certainly the right answer when the range is understocked. But when the range is fully stocked or overstocked, failure to harvest the animal increment increases the strain on the food producing capacity of the range, increases the chances for disease outbreak and heavy natural mortality, reduces size and health of the deer, and reduces reproductive capacity. This results in increased natural loss which can only be considered as waste of natural resources.

How can this waste be prevented? First must come the full realization that it exists. We believe that our observations to date offer ample evidence of this. Next must come the realization that it is impossible to maintain control over a protected herd by harvesting bucks only. Harvest of antlerless deer must be made a standard part of the management procedure. We must think in terms of harvesting deer rather than bucks only. Since the sex ratio of fawns is 50-50 the sex ratio of the harvest should also be 50-50. Third, the amount of the harvest should be equal to the annual increment less unavoidable natural mortality such as loss immediately after fawn drop.

If we could embark on such a program the annual harvest by sportsmen would be approximately double what it has been. And the deer herd would not be endangered since our harvest would be limited only to animals which would be doomed to die anyway.

Studies To Be Continued

Most of the data we have accumulated so far applies mainly to the Uwharrie Wildlife Management Area. Rarallel studies are under way on other areas and the evidence appears to be tending in the same direction: Wherever we can provide a high level of protection, herds have increased to the point where bucks only harvest is resulting in a considerable waste. Exactly how much waste we do not yet know, but additional surveys and survey methods are being developed which will keep us informed as to population levels and desirable harvest intensity. Results of these surveys will be published in *Wildlife*.

A well-defined browse line indicates that the deer are damaging the forest and destroying their own food supply. The food-population problem can be solved in either or both of two ways: 1) reducing the herd, or 2) conducting logging operations which will create more browse.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

World's Only Striped Bass Hatchery Closed-TOO MUCH Water!

After several years of worry about getting enough water in the Roanoke River at Weldon to operate the striped bass hatchery, the Wildlife Resources Commission had to close down the hatchery this year because of too much water. Unusually heavy spring rains have made necessary releasing water levels from 26 to 32 feet from Kerr Reservoir during the striped bass spawning season. Since eggs for the Weldon hatchery are obtained only from female fish caught in dip nets, high water levels made this type of fishing impossible in the Weldon spawning area. Biologists operating the hatchery finally closed shop and went back to other duties.

Tar Heel Wildlife Protectors Complete In-Service Training

North Carolina probably has one of the best-trained group of wildlife protectors in the entire nation. All have been given intensive pre-service training, and more recently, the entire field staff completed a specialized course in law enforcement procedure. In June the nine supervisors will have an additional 2-day training course on administrative procedure. The courses are part of a three-year curriculum arranged so that men newly added to the staff will receive the entire course.

N. C. Fishing Slated for NBC 'Monitor' News Roundup

Each weekend during the June-October fishing season NBC's MONITOR show will carry a weekend roundup of fishing outlook of North Carolina and other states. Each Thursday a collect wire will be sent to NBC's New York headquarters giving the Tar Heel outlook. Persons interested in reporting fishing conditions (both fresh and salt water) should send reports to ROUNDUP, Box 2919, Raleigh, by Thursday morning of each week.

Commission Has Millet Seed For Waterfowl Ponds

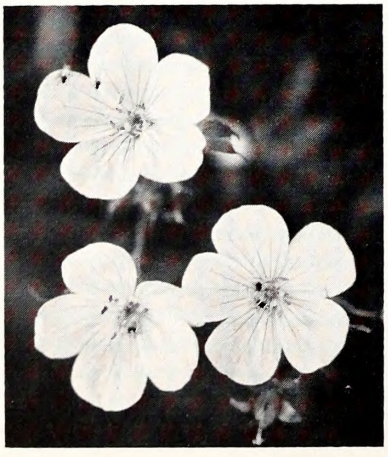
The Wildlife Resources Commission has a considerable quantity of millet seed available free of charge to pond owners wishing to develop their ponds for waterfowl. Write to: Game Division, Box 2919, Raleigh, for free information.

Wild Flowers Are Fascinatin

Photo Feature by Jack Dermid

Lie on the ground, take a close look—as did Randy Roberts of Greensboro while attending school camp at Umstead State Park—and you will discover a fascinating world of beauty in wild flowers. The leaves of bird's-foot violet (above) resemble the foot of a bird.

Could any place on earth be r
June when acre upon acre of C



Wild geranium: pink, symmetrical faces along a wooded roadside.

Every boy should know a secret place where jack-in-the-pulpit grows.

From the time the first hepatica brings a promise of spring until the last goldenrod fades beneath the frosts of autumn, countless wild flowers stage an everchanging pageant of color, a "spectacular" which extends from lowland swamps to the very peaks of the mountains.

Everywhere out-of-doors, wild flowers capture the eye—some so beautiful they defy description, others so unusual they steal the imagination; some so rare their discovery is an event, others so commonplace they are unnoticed. Joe-Pye-weed stands bold and conspicuous beside upland fields, while the flower of wild ginger hides beneath leaf mold of the forest floor. Colors may be bright yellow or madder purple, with a hundred tints and shades in between.

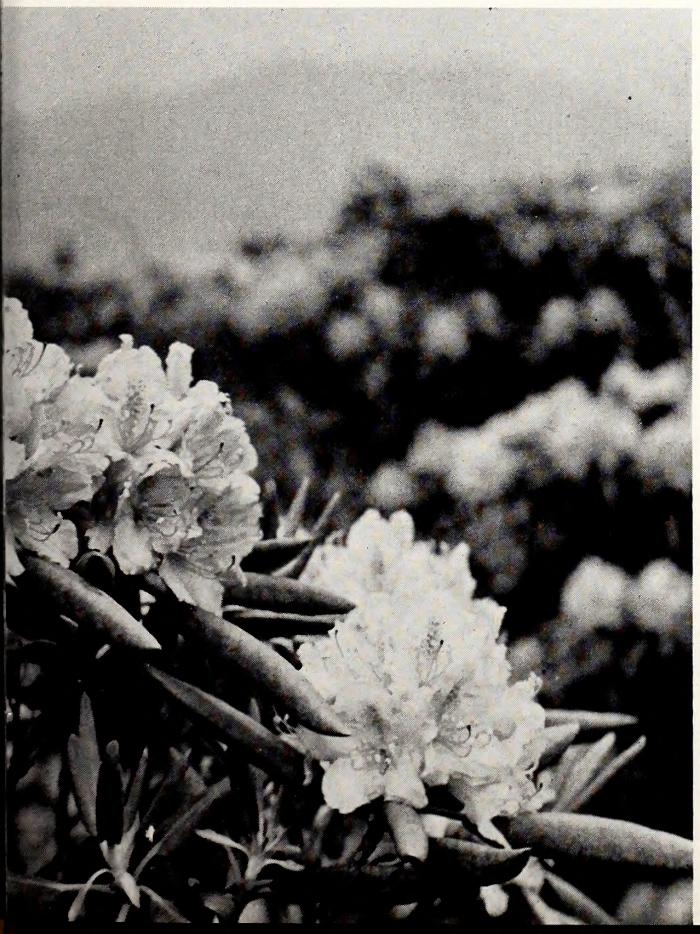
Such is the variety to be found among wild flowers. But all wild flowers have one thing in common: they have a name! And to learn to call the many species of flowers by name is a fascinating challenge, a nature hobby that will bring hours of outdoor enjoyment.

Identification is the first step in wild flower study, but soon the names themselves are intriguing, for example, bloodroot (sooner or later you will cut a root to see for yourself) or ladies' tresses or shadbush (said to flower when shad are running). Meaningful names lead to interesting stories about wild flowers, stories of adventure, natural history, medicine, folklore. If you missed it, see Jim Lee's absorbing "Shortia—Mystery Flower of the Mountains" in the May 1958 issue of WILDLIFE. There are Indian legends about wild flowers, too, such as the story of how Catawba rhododendron got its color. According to legend, three mighty battles were once fought on the summit of Roan Mountain, and afterwards, nourished by the blood of slain warriors, the blossoms became crimson.

The purpose of flowers is reproduction of the species. This leads to the fascinating relationships of insects and pollination; to seeds or fruits. What fruits are of value to wildlife? Indeed, the wild flower story has many facets.

Wild flowers, then, are worth more than a passing glance. They accent nature's scene with color, produce food for wildlife, and give added pleasure to fishing trips and other outdoor ventures.

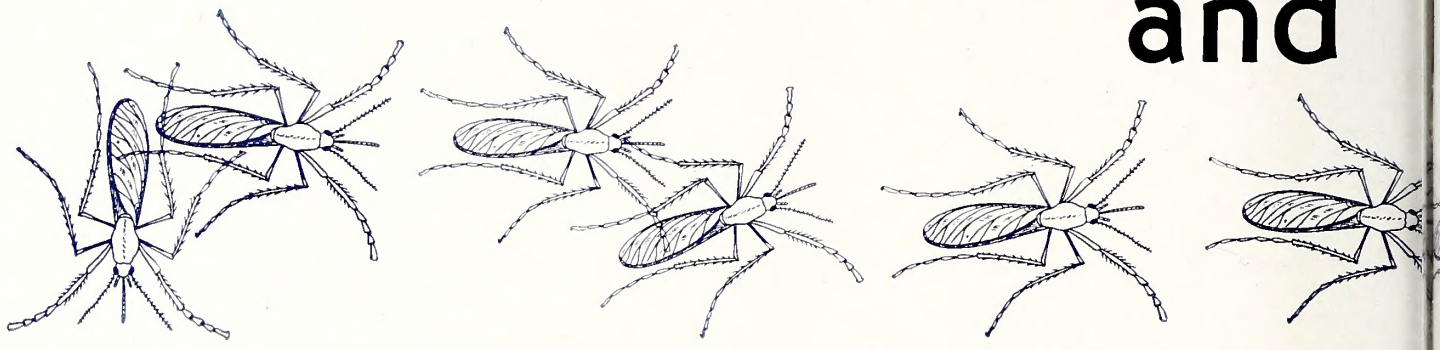
**l than the summit of Roan Mountain in mid-
ıle) rhododendron burst into a riot of color?**



Flowering dogwood, North Carolina's state flower, greets springtime with a shower of dazzling blossoms, each a head of small flowers. The showy "petals" are actually bracts. Below: Like soldiers abreast, blue racemes of lupine march through the Sandhills.

What the blackberry lacks in beauty, it makes up tenfold in utility. Blackberries, in one form or other, occur from coast to coast and produce fruits that are abundant and important summer food for wildlife. The briar tangles provide such good cover that small birds and animals can feast in safety.

Mosquito Control and



WILDLIFE biologists appreciate fully the need of suppressing nusance mosquitoes. At the same time they recognize the important public values in areas where mosquitoes may breed. To appraise the problem fairly, all sides must be considered. There is no doubt that *certain* types of marshes do produce large numbers of pest mosquitoes. However, it is also true that wetlands provide a large share of the hunting and sport fishing for which 25 million Americans pay 3 billion dollars annually. Other recreational and aesthetic values of wetland cannot be measured in dollars and cents but are at least equally important. Marshes also help maintain adequate ground-water levels, help prevent salt water from encroaching on supplies of fresh water, and serve as flood-storage reservoirs. In addition, wetland provide commodities of economic importance, such as food, furs and plant materials.

Fortunately, mosquito control and wildlife management need not be irreconcilable. Often, conflict between the two is minor. For example, some of the most pestiferous mosquitoes are produced in habitats that are of little value for marsh wildlife. These include certain mosquitoes of the genera *Aedes* and *Psorophora* which breed in relatively small areas that are only irregularly flooded and often dry. Mosquitoes can be controlled in these areas without any great damage to wildlife. On the other hand, permanent ponds containing fish produce few pest mosquitoes. Nevertheless, in the past many ponds were ditched and partly or completely drained for mosquito control. Water areas of this type are very attractive to waterfowl, and their retention, with slight modification in some instances, does not provide a serious mosquito nuisance.

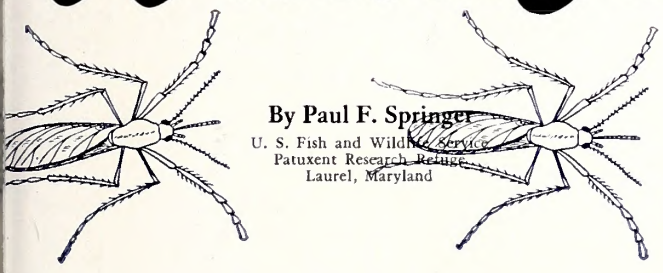
Marshes, breeding areas for mosquitos, are also the homes of many wildlife species, including such important furbearers as muskrats, source of revenue to many North Carolina trappers.

Photo by Jack Dermid

To resolve conflict between mosquito abatement and wildlife management, the objective should be a course of operation which will benefit both programs. Because of resistance of mosquitoes to DDT and other insecticides, control efforts are turning again toward water management. Since this is the approach used in the waterfowl field, there are unique opportunities for working out problems by joint appraisal and study.

To control most mosquitoes it is necessary to remove or modify only the water in which they breed, namely the water above the ground. Ditching, the primary method for removing surface water, has been denounced by some but is not detrimental to wildlife in certain places. In marshes where the mean low-tide level is close to the soil surface, ditches can have little or no harmful effect on wildlife. Under such conditions ditching even may improve the area by providing openings and a more favorable interspersion of water and vegetation. In higher marshes. unfortunately, the situation is quite different. Here ditching is apt to remove more water than just the portion above the ground surface and may lower the water table to the point

Wildlife



By Paul F. Springer
U. S. Fish and Wildlife Service
Patuxent Research Refuge
Laurel, Maryland

where undersirable changes occur in pond levels and vegetation.

In high marshes, other methods of mosquito control are needed. One promising procedure involves modified types of ditching which permit regulation of the water level. Water can be removed from the surface of the marsh and yet be maintained in adequate amounts in ditches and ponds. This was accomplished successfully in some states during the late 1930's by construction of ditches with water gates or sills and by sump drainage. This method of mosquito control has had little use in recent years but appears worthy of reconsideration.

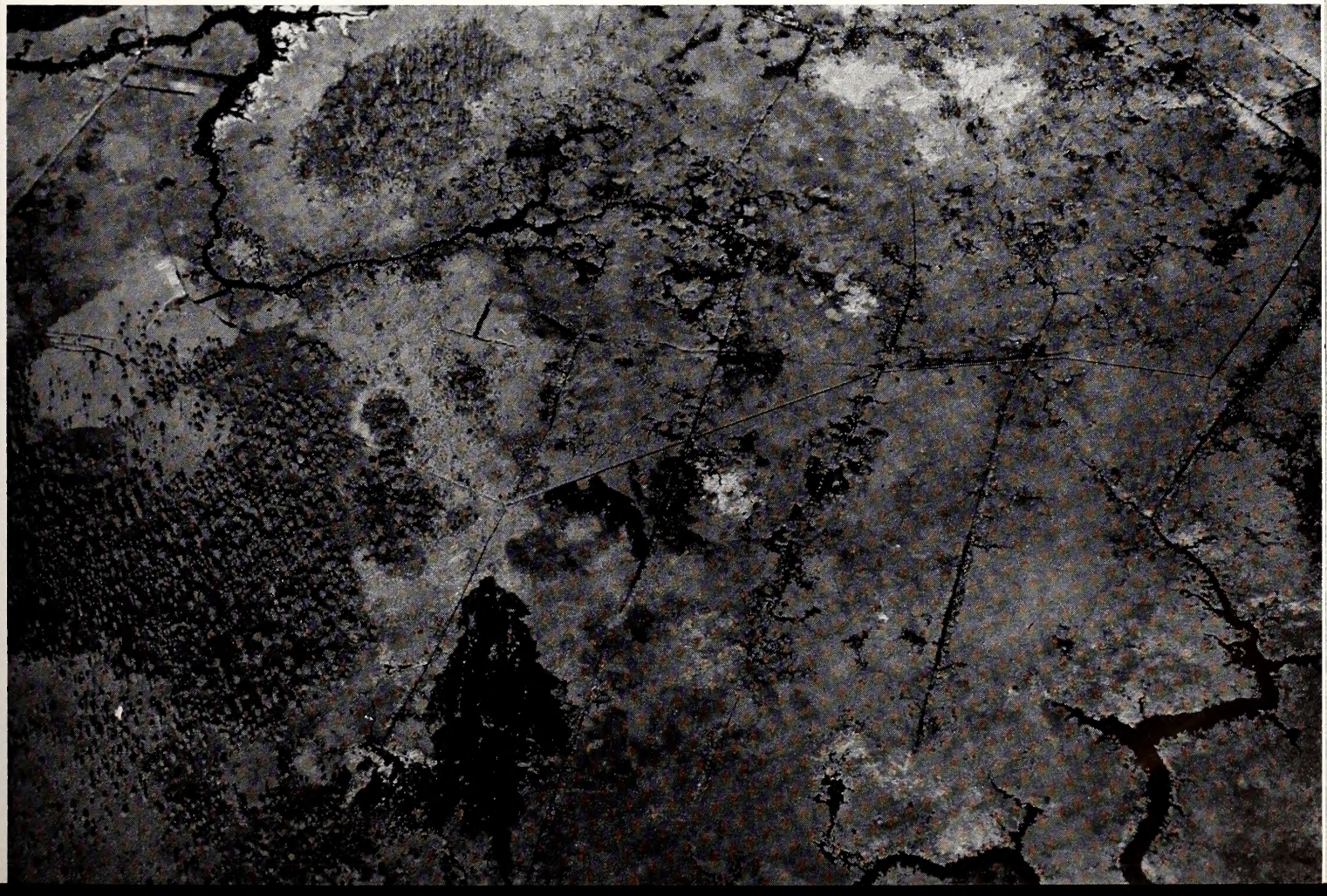
Another promising measure is diking and flooding. Recent cooperative studies by mosquito control and wildlife workers in Delaware and New Jersey, as well as investigations in Florida and elsewhere, show that impoundment of water can control production of pestiferous saltmarsh *Aedes* mosquitoes. Flooding covers and thus eliminates the moist soil sites necessary for egg deposition by these mosquitoes, often at a cost less than that of ditching.

Further study is needed to determine the effectiveness of these methods under various ecological conditions in different parts of the country. Also, research is needed on finding new ways of successfully integrating mosquito control and wildlife management.

Although water management is regarded by some as the most practical basis of mosquito abatement, the principal control method used today in many parts of the country is repetitive application of powerful new insecticides developed during and since World War II. Some of the materials can damage fish, crabs and certain other aquatic animals. Insofar as practical, only those chemicals should be applied which are comparatively safe for

Eastern North Carolina contains vast areas of wetlands, where the water table is within inches of the surface. In places where the ground is a little higher, trees such as pond pine dot the landscape. Near the mouths of such rivers as the Cape Fear, spawling flats are frequently flooded during high water and high tides, leaving puddles in which mosquitoes can breed.

Photo by Rod Amundson



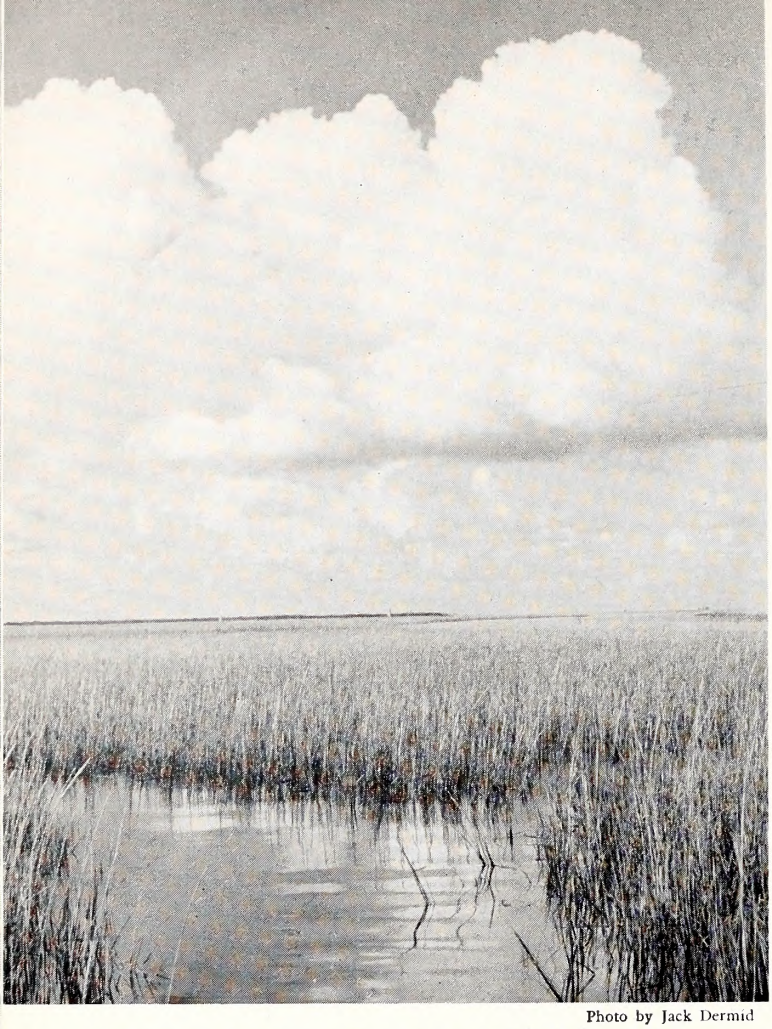


Photo by Jack Dermid

Salt marshes provide nesting sites and food supplies for many important wildlife species. Crabs and other food animals are particularly susceptible to many mosquito control chemicals.

wildlife and their food-chain organisms. Generally, a minimum of damage to wildlife results from single or widely-spaced aerial applications of 0.2 pound of DDT per acre, a level at or above that recommended by the U. S. Department of Agriculture and the U. S. Public Health Service for control of larvae not resistant to this insecticide. The U. S. Fish and Wildlife Service suggests that if treatments are to be made repeatedly, the dosage be reduced to 0.1 pound per acre. Pyrethrum, technical BHC (containing 12-14 percent gamma isomer) and TDE (DDD) are less toxic than DDT, while lindane (100 percent gamma BHC), dieldrin and malathion are more damaging. Knowledge of the effects of many new insecticides on wildlife is rudimentary or non-existent. Adequate research at all levels is needed to supply this information essential for developing safe control programs.

Flooding of mosquito breeding areas under several inches of water will reduce the mosquito nuisance, says the author, and at the same time will create valuable waterfowl habitat.

It is very important that dosages, formulations, and manner and frequency of application comply strickly with Federal and State recommendations. Overdosing "for good measure" increases the dangers to wildlife without assuring greater mosquito control. Since oil solutions are less dangerous than emulsions to aquatic life, they should be used whenever possible. Granular formulations which release toxicants slowly provide satisfactory mosquito control and may be safer than oil solutions for fish, presumably because all of the chemical is not available at the same time. Applications should be made to mosquito-breeding sites only, and precautions should be taken to avoid drift or drainage into non-infested waters.

Though wildlife biologists generally recognize the possible harm to wildlife from certain mosquito abatement practices, they sometimes fail to consider the fact that some of their water development programs for wildlife may result in increased breeding of mosquitoes. It is little wonder then that these projects may be viewed with concern by mosquito control operators. To integrate interests of mosquito control and wildlife, adherence to the following points is suggested:

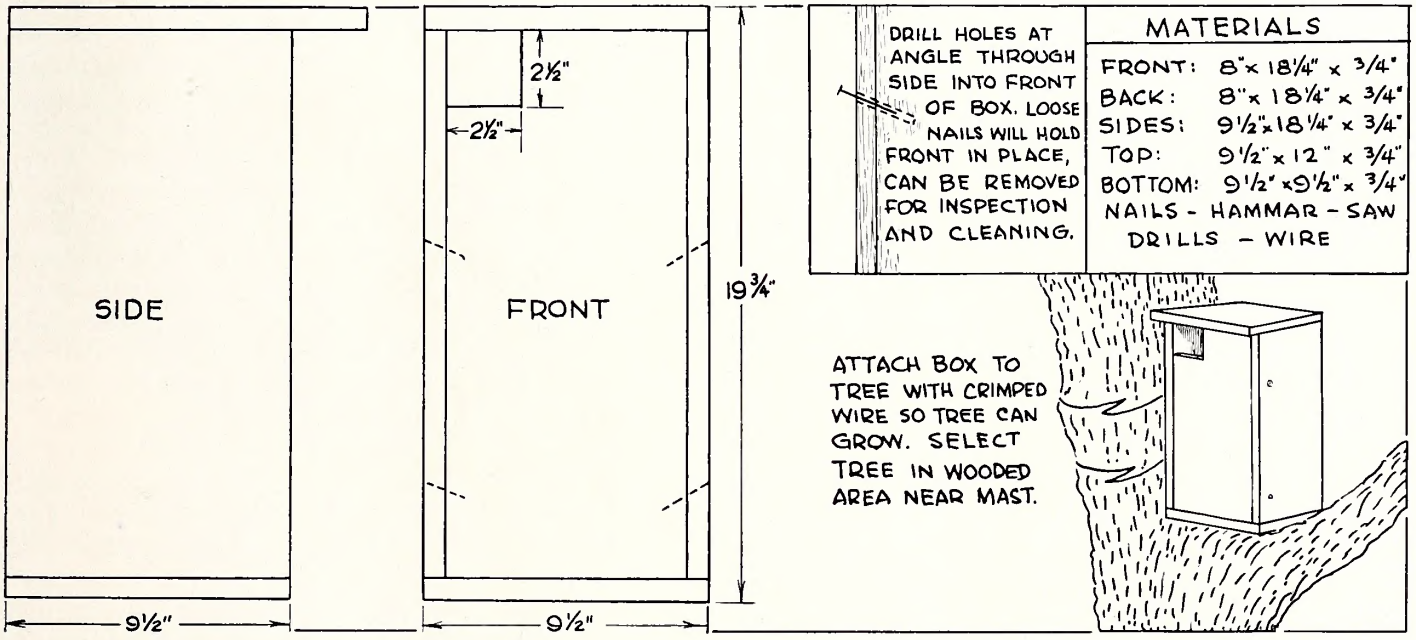
1. Mosquito control and wildlife programs should be undertaken only where they are clearly in the *best* public interest.
2. In either type of program detailed plans should be made giving adequate attention to entomological, biological, engineering and toxicological aspects and taking into account the individual character of each marsh. Undue harm to other interests should be avoided.
3. Prior to its initiation, the program should be discussed with interested wildlife or mosquito control groups, and their comments and suggestions should be given careful consideration. Program reports should be submitted to these groups.
4. Provision should be made for adequate maintenance of projects.
5. If conflict arises between groups involved in a program, joint studies should resolve difference. If conflict still persists, it is suggested that the problem be submitted to an impartial group, such as a water resources board.

"Three-Year Investigation of Mosquito Breeding in Natural and Impounded Tidal Marshes in Delaware" by Richard F. Darsie, Jr. and Paul F. Springer is available from the University of Delaware Agricultural Experiment Station, Newark, Delaware.

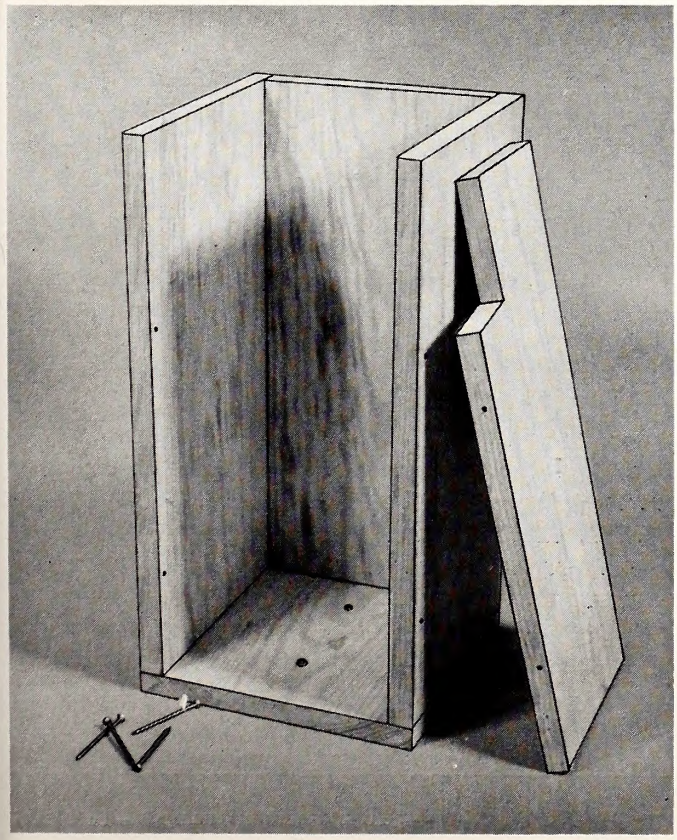
NEW SQUIRREL BOX DESIGN

A NEW SQUIRREL NEST BOX DESIGN HAS BEEN DEVELOPED BY THE GAME DIVISION TO ELIMINATE EXPENSIVE HARDWARE. YOU CAN STILL AID SQUIRREL NESTING THIS YEAR IF YOU BUILD YOUR BOX NOW.

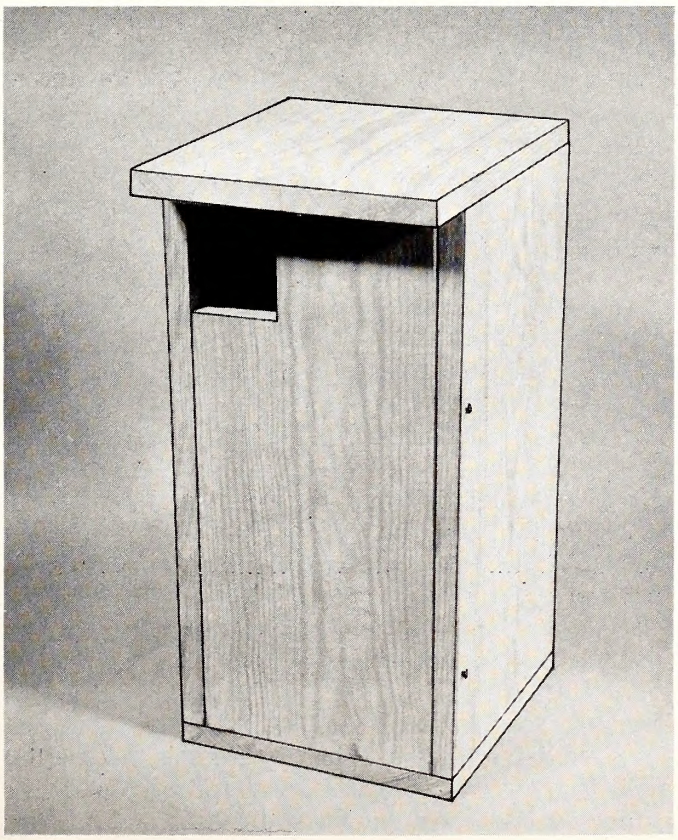
Illustrations by Jim Lee



Squirrel box with top removed. Note drain holes in the bottom and a front which can be removed for cleaning and inspection.



The completed nest box with top nailed in place and front temporarily in place, using nails instead of more expensive hinges.



Teddy Roosevelt ROUGH RIDER *and* BIRD WATCHER

By Bill Hamnett

Courtesy Archives and History

THIS year marks the centennial of the birth of Theodore Roosevelt. To be sure, many people more conspicuous or less presumptious could be accorded honor and dedication also. But to us—who hunt or fish, hike or camp, tack or canter, admire or admonish—this man Theodore ignited the fuse that burned conservation into the conscience of the American people. The idea was conservation through wise-use. In contrast to the beliefs held prior to this time, he conceived the idea that wildlife, soil, forests and water were renewable organic resources, which might last forever if they were harvested or used scientifically, and not faster than they were replaced or reproduced. Roosevelt's idea of science as a tool for conservation seems to have been prophetic, but it was new and cumbersome in the early 1900's.

At that time "conservation" was just a word in the dictionary, rarely used, and found between "consequence" and "consider". We know now that if we had not continue to practice the precepts of conservation we shall have to consider the consequences.

Theodore Roosevelt provided three conservation axioms that largely determined the subsequent history of wildlife conservation:

1. Natural resources as one integral whole.
2. Conservation through wise use as a public responsibility; and private ownership as a public trust.
3. Science as the tool for discharging that responsibility.

Your Wildlife Resources Commission today is influenced by these precepts established years ago.

"Teddy" Roosevelt, who found strength as a boy living in and absorbing the out-of-doors, never forgot the benefits he had derived, and did all in his power to perpetuate for all his fellow citizens the same medicine and teaching. Roosevelt, whose life spelled action, was our 25th President and his soundness of judgement in advocating and passing on wildlife matters may well be the reason our wildlife resources are substantially as important as they now are.

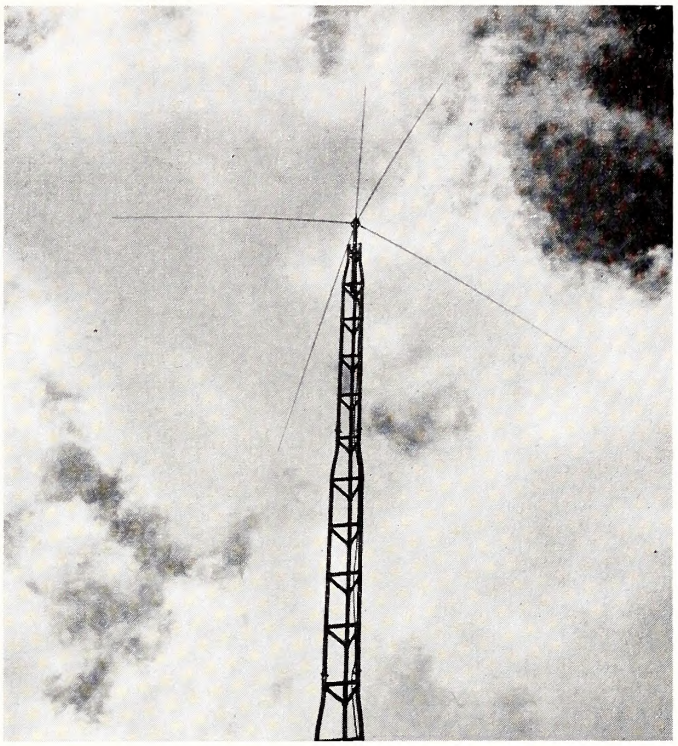
During his tenure in office as President the first federal wildlife refuge (1903), Pelican Island in Florida, was established. In 1904, by executive order, he established 51 national bird reserves in 17 states and territories including Alaska, Hawaii, and Puerto Rico. Next year it was the Game Preserve in Wichita Mountains, Oklahoma (so much in conservation news today because of the expanding artillery missile program at Ft. Sill). Other refuges and protected areas were established, and because of the impetus of the Roosevelt philosophy in conservation many state governments began to provide local areas. Certainly, Theodore Roosevelt nurtured the cause of wildlife conservation during the years of his greatest influence.

His interest was not focused entirely toward the wildlife resources. Looking at things in the whole, not as individual segments, we see Roosevelt's conservation dream materialize during his administration. There were four new National Parks created: the Forest Service and Reclamation Service were given full status and departmental administration; the National Monument Act has made easier the establishment of historically significant Americans. In 1908 he called the first conference of Governors for an inventory of the nation's natural resources.

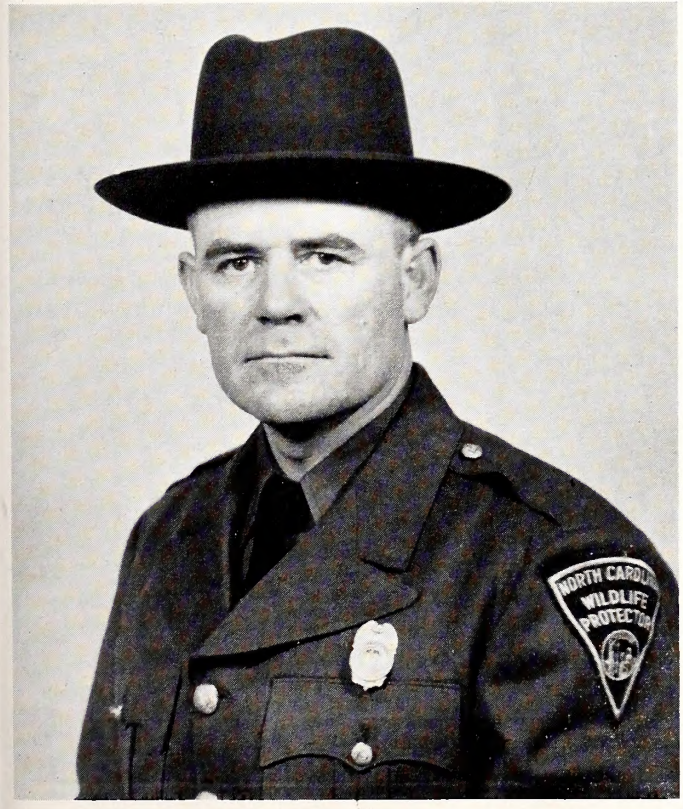
Yes, T. R. moulded a sound national philosophy in the fields of wildlife management, forestry, soil reclamation and water use.

New Transmitter for Protection Division

A new radio transmitter was recently installed in the Wildlife Resources Commission's Raleigh office in the new Motor Vehicles Building. With an aerial located on the roof of the four-story building, radio communication with field personnel of the Protection Division has been extended to a wide part of the State. In the event of emergencies, the Commission's patrol plane can be used as a mile-high relay station to reach all but the most distant members of the Protection Division's staff.



PROTECTOR OF THE MONTH



Ralph R. Griffin

Mr. Ralph R. Griffin, Anson County Wildlife Protector, was born in Monroe, North Carolina on January 20, 1921. He moved with his family to Anson County at an early age, and graduated from Deep Creek High School in 1939.

Prior to employment with the North Carolina Wildlife Resources Commission on September 15, 1950, Mr. Griffin worked with the North Carolina Forest Service. He attended the Wildlife Protector's Training School in 1951.

Mr. Griffin is married to the former Elizabeth Mason of Anson County, and they have three children. The Griffins are members of the Mount Olive Baptist Church, and they reside at Route 3, Wadesboro, North Carolina.

ENFORCEMENT RECORD FOR APRIL

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other law enforcement agencies in the enforcement activities for the month of April, 1958.

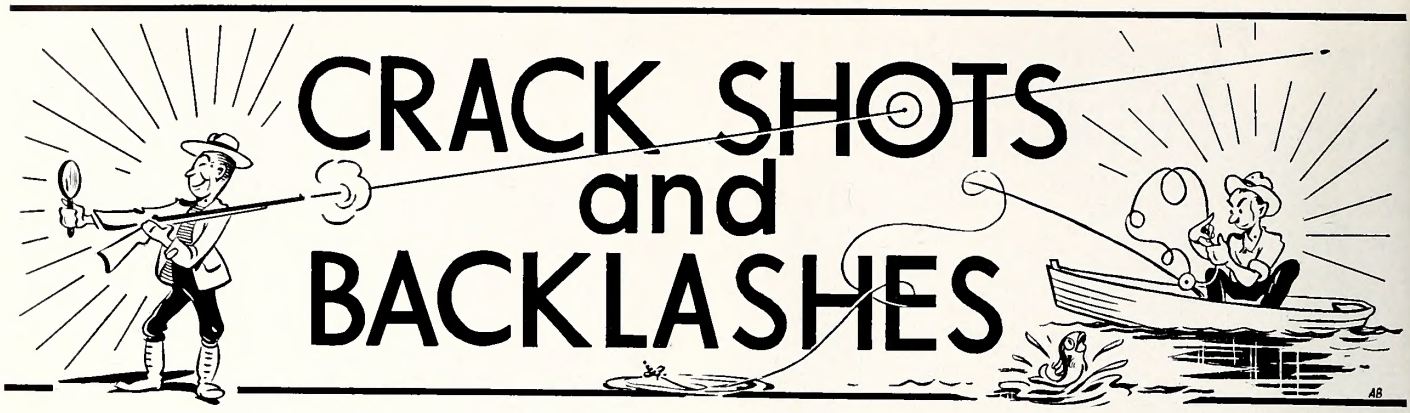
Persons checked	38,190
Total prosecutions	869
Total convictions	851
Total cases not guilty	7
Total cases nol prossed	11
Total fines collected	$3,913.60
Total costs collected	$6,390.66

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is it a violation of the game laws to transport live fish?

ANSWER: "It shall be unlawful for any person, firm or corporation to transport live freshwater non-game fish, or live game fish in excess of the legal limit, without first having obtained a permit from the Executive Director of the Wildlife Resources Commission."



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

"A man knocked at the heavenly gate
His face was scarred and old;
"He stood before the man of fate
For admission to the fold.
"What have you done, St. Peter asked,
To gain admission here?
"I have been a game warden, sir,
For many and many a year.
"The pearly gates swung open wide,
St. Peter touched the bell—
"Come and choose your harp," he said
"You have had your share of hell."

—Borrowed, gratefully, from VIRGINIA WILDLIFE—Ed.

"Dear Sir:

"I have a young American Water Spaniel which I am very interested in placing with a reputable trainer to be finished off in gun work, water and field retrieving.

"At present this pup is four months old and it will be two months anyhow before he is ready for more advanced training. I can do the yard breaking fairly well but I would like to have this dog finished off properly in order that he will make a pleasant and effective hunting companion in the duck marshes by next season.

"Your fine magazine has had several very good articles as to the desirability of using retrieving gun dogs, therefore, the thought occurred that you may know of someone who would take this pup during the summer months for training purposes at a reasonable fee. The American Water Spaniel is one of the finest small retrievers; intelligent, friendly and quick to respond. He is, however, a very sensitive dog and can be ruined with any kind of harsh treatment. The pup I have is registered with AKC and comes from a very fine blooded line.

"I shall certainly appreciate any further information you have or may develop that will assist me having this dog properly trained.

Yours very truly,
Emmett H. Durham, Raleigh, N. C."

All right, dog trainers, there is a customer!

Farm pond fishing is on the upswing in North Carolina, and Betty Richardson of Raleigh reminds us that June is a fishing month.

"Mr. Clyde P. Patton
Executive Director
Wildlife Resources Commission
State of North Carolina
Raleigh, North Carolina, U.S.A.

"Dear Mr. Patton:

"Thank you very much for your courtesy in sending me various data with your letter of April 11, 1958. It will be very helpful to use in our comparison of regulations in Canada and the United States.

"I was particularly pleased to receive the tenth anniversary issue of your magazine, WILDLIFE IN NORTH CAROLINA. This magazine is the finest of its kind I have seen and you are to be congratulated on providing your sportsmen with the opportunity to keep well informed in fish and game matters affecting your state. I intend to pass the magazine among my fellow directors and I am sure they will share my views.

Yours very truly,
Norman Shaddock
Calgary, Alberta, Canada"

"Dear Sir:

"Recently I had the good fortune of catching nine largemouth bass ranging from 1½ pounds to 2 pounds in a small private pond near Pittsboro.

"While conferring with my neighbor I found that he too had taken fish from this pond. While cleaning the fish, he found what appeared to be malignant worms lodged in the entrails of the fish. Since I have never heard of worms in fish, would you please confirm this report, as to whether or not it is possible for the fresh-water fish to be wormy? Please advise by letter or I will look for your reply in my next issue of WILDLIFE.

Yours very truly,
Terry Bullington, Pittsboro, N. C."

Internal parasites are quite common in fish. Various types of worms are found in the flesh as well as in the digestive tract. They are seldom seen because most people don't examine the flesh or viscera carefully; not considered harmful to humans.

Mr. Ernest Beal, Red Oak, is a member of the Wildlife Resources Commission, and called on Mr. Sargent when he was in a Rocky Mount hospital. Kind deeds beget kind words.

"Dear Mr. Beal:

"I was very interested while reading the last issue of WILDLIFE to recognize your picture at Commission meeting. It reminded me of the many pleasant visits you made to me while a patient in Parkview Hospital in Rocky Mount in 1951.

A group of Brownie Scouts helped introduce a new litterbug song in Raleigh recently, as they played the part of litterbugs for members of the press and delegates to a meeting of the N. C. Garden Club. In the background are the songwriters.

A new song designed to help make more people more conscious of the anti-litterbug champion was introduced recently at a meeting of the North Carolina Garden Club in Raleigh. With words by the Wildlife Commission's Lunette Barber and music by Ruth Jewell, State Department of Public Instruction, the catchy song was later used on television. Words and music will be published in the near future, the songwriters say. The introduction of the song comes at a timely date; hundreds of thousands of Tarheel vacationers will be having a chance to put these suggestions to good use:

DON'T BE A LITTERBUG

From Maine to California, and all across our Nation.
There is a special slogan. It's causing a sensation.
The highway signs reminds us as we ride along each day
Over mountains, through the valleys, plains and coasts along the way.
Chorus: Don't be a litterbug, litterbug, litterbug
Why be a litterbug, say? Nothing quite gives us the jitters
As to see the one who litters ev'ry mile or two along the green highway.
Don't throw away your cans, bottles, cups — let's show spunk
To free our rights-of-way from junk
Our country's beauty is for all to see
Don't be a litterbug is our nation's plea.
When starting on a journey, a litter bag is found
To catch all kinds of trash we we throw upon the ground
Our many miles of highway can be kept litter free
If each of us will do it, this means both you and me.
Chorus
At drive-ins, service stations, in parks and on playgrounds
It's here the litterbug seems always making rounds
In streets and on the beaches, homes, schools, theaters, lawns
Blot away this litterbug before a new day dawns.

Copyright 1958 by
Lunette Barber and Ruth Jewell

"You gave me my first subscription to WILDLIFE and I have subscribed to it ever since. I think it's a wonderful way to show some of the good work being done in your state. Each copy goes through many hands after leaving me. It creates a great interest among the fellows.

"It is a great pleasure for me to recall the many kind associations which I had during my stay there. All of the folks there made what could have been a bad time to one of pleasant memories. I have had many operations since then and am in a wheel chair all the time, yet life still gives me a happy challenge.

"I have been in this hospital for three years and find it a great institution. It makes me proud to be a member in such an organization. If it were possible I would like to return and renew the fine acquaintances I made. Thank you for your interests.

Yours sincerely,
Sarg
(Lewis T. Sargent)
Masonic Hospital
Shrewsbury, Mass."

"Dear Sir:

"Please give me a list of dog kennels in your state and the addresss of the same that sell Beagle hounds. I wish to acquire some North Carolina rabbit hunting Beagle hounds. Thanks.

Sincerely yours,
Ross Williams
Miami 43, Florida"

Sorry we couldn't supply Mr. Williams with a list, but we are sure our readers can. His address is 5990 Southwest 48th St., Miami 43.

While we are on the subject of dogs, this is the breeding season for rabbits, quail and other small game. Countless dogs roam freely around in the woods and fields. If you are a dog owner, keep old Rover tied up or penned. You don't want him killing game you would like to shoot next fall.

"Dear Sir:

"I am enclosing a check for $1.00 and ask that you send WILDLIFE IN NORTH CAROLINA to: W. K. Keeter, N. C. School for the Deaf, Morganton, and J. Frank Love, III, Mount Holly.

"On page 22 of the April issue you reproduce a fishing license receipt of mine. Caption states the permit was necessary to fish in lakes of Western Carolina Power Company. The license clearly states that it does not grant privilege of fishing in any waters without permission from the owner.

"The Power Company built the lake in 1917. In a very short time it developed into a fisherman's paradise. Unfortunately all were not true sportsmen, and many were taking fish by any method or means that would take the fish.

"A group of conservation minded sportsmen petitioned the State Legislature and were granted authority to set up regulations to control the method of taking fish and regulating size and bag limits. A private hatchery and rearing ponds for bass were established and a game warden employed to enforce regulations.

"The project was very popular and generally successful.

"We thought it fitting that you should know that the home bailiwick of your present Chairman of Wildlife Resources, Mr. James A. Connelly, was the pioneer of conservation and propagation of fish in the State of North Carolina, as State participation did not come into effect until sometime later.

Yours very truly,
W. K. Keeter, Morganton"

Just a reminder that woods babies are seldom lost, and that you're doing the little fellow no favor by taking him home. Leave him for his mother; she'll appreciate it.

"Dear Sir:

I am enclosing two news items that may be of interest to many of your readers. The report of the first event was delayed pending the outcome of the second.

Yours truly,
Hubert I. Reinhardt, Secretary
North Carolina Association
of Beagle Clubs, Newton, N. C."

"The Northern Carolina Association of Beagle Clubs' Spring Winners' Stake was held April 11 and 12 on the State Beagle Field Trial Area at Lexington, N. C.

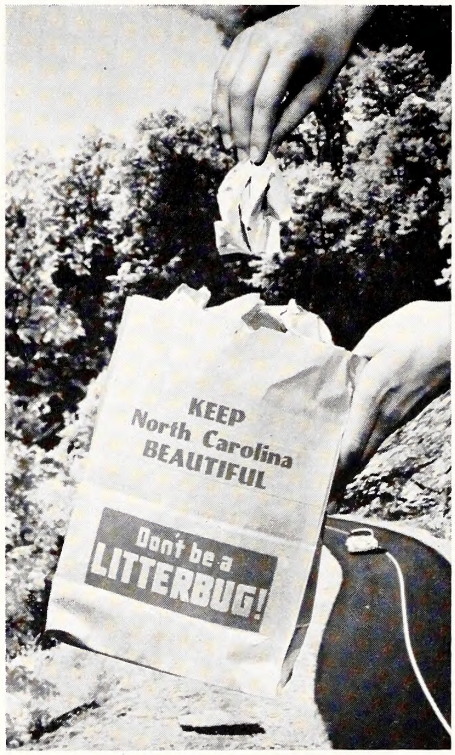
"It was a pleasure and a privilege to have two of our wildlife commissioners with us for the trials. Mr. Thurman Briggs, who has been with us on other occasions, and Mr. G. E. Beal, who came from Red Oak, were guests at the trial. We were also pleased to have several friends and neighbors of Mr. Beal with us.

"Results: Entrants here were winners of member club trials)

15-inch class—Sauratown Frank (owner B. B. Walker, Walnut Grove) first; Virolina Meddlesome Boogie (owner Charles J. McBride, Stanleytown, Virginia) second; Reinhardt's Chester Good (owner Hubert I. Reinhardt, Newton) third; and Black Jack (owner Joe Cope, Lexington) fourth. Reserve was Vaughn's Dippie, Albert A. Vaughn, Stokesdale, owner. 13-inch class—Chick's Shag (owner Charles Gantt, Conover) first; Chase-A-Bunny Lady (owner Ken Isaac, Maiden) second; Sunstrand Penny (owner H. R. Jones, Greensboro) third; and Old Hickory Jackie (owner Willis Barnes, Taylorsville) fourth. Reserve was Power Pac Cindy Lou, Curtice Harris, Ridgeway, Virginia, owner."

"On April 28 Sauratown Frank, winner of the 15-inch class competition at Lexington, won the highest honor possible for a beagle to obtain in field trial competition. He placed first in the Spring Derby Championship field trials of the International Federation of Beagle Clubs at Pittsburgh, Pennsylvania. There were 104 entries in the two-day trial, representing winners from trials involving more than 7,000 beagles running in individual club preliminary trials in the United States and Canada.

"Frank started his climb to fame by winning first place at the qualifying trial of the Rockingham County Beagle Club. From there he continued with a first place in the Winners Stake of the Northern Carolina Association of Beagle Clubs at Lexington. The next step was the climax: first place at the International."



State News Bureau Photo by Bill Gulley

This "sack" is fashionable in North Carolina. It's the increasingly popular litterbag that is helping keep our state beautiful by keeping it clean.

Dear Sirs:

From your very excellent magazine I know that you are interested in events relating to wildlife in our state.

The biggest piece of news that I know of is that my wife, Mrs. Frances E. Entwistle, caught a 23 ounce bluegill bream out of our farm pond.

She has the bream frozen whole and doesn't seem the least bit ashamed of her catch.

Sincerely,
John Entwistle
Rockingham, N. C.

Mrs. Entwistle is to be congratulated. Twenty-three ounces of bream is good news in anybody's book.

A nice string of white perch, caught in the Neuse River almost on the outskirts of Raleigh during the spring spawning run.

"Dear Sir:

"Have just read your February issue, and enclose my dollar for a two year subscription to WILDLIFE.

"This is the first issue that I have seen, I regret to say. If successive numbers are not as interesting, this one will be a sufficient return for my dollar. Congratulations to all who helped make it!

Yours sincerely,
Olive Dorgan, Asheville"

INSTRUCTIONS FOR 'APES' ON GOOD WATER BEHAVIOR

It is the time of the year when the "Apes" start gathering around the water.

An ape around the water is, to a fisherman, a boatman.

An ape around the water is, to a boatman, a fisherman.

From experts who have made painstaking studies of this perennial paradox in the zoology of sporting personalities, I have gathered a list of suggestions.

These suggestions are designed to soothe the savage beast in both the speedboater and the fisherman as much as possible. The list of do's and don'ts:

FOR FISHERMEN

1. If a boatman upsets your quiet cove with a 30-knot dido, don't throw a treble hook at him. Use single hooks, which are less expensive.

2. Never curse a speedboater until you know whether he has women aboard. When you have determined that, either way, cut loose.

3. Never shoot at a speedboater until you're sure he isn't wearing a badge.

4. In the placing of mines, be careful to anchor them safe distances from fish beds.

5. Send comic greetings cards to speedboaters on their birthdays.

FOR BOATMEN

1. Give the fisherman the right-of-way if he is in water too shallow for your craft to enter.
2. If fishermen anchor all the way across the channel without leaving room for a canoe to pass through, don't lose your temper. Just run them down.
3. If a fisherman casts across your bow, don't try to grab his line as you go by. The propeller will cut it nicely.
4. If you idle your engine to near stall-out as you pass a fisherman's cove and he still curses you, just ignore him. And try to wash him ashore on the return trip.
5. Send comic greeting cards to fishermen on their birthdays.

Journal and Sentinel
—Hank Schoolfield, Winston-Salem

FIELD NOTES

"I have proof that the person who coined the term "dumb bunny" was woefully wrong. At any rate, I met a bunny the other day and that little fellow—it might have been a girl—was anything but dumb.

"The meeting occurred on April 17 on a swamp just south of Washington along U. S. Highway 17. I was wading in about a foot of water in a dense stand of ash and cypress when suddenly I was struck by the feeling of being watched. Have you ever felt that you were being watched? It leaves one with a strange and spooky feeling. "The beady eyes of a cottonmouth moccasin," I thought, "or maybe an owl."

"But I was wrong—for almost immediately I spotted a rabbit, watching me from a large log twenty feet away. At the time I thought it was dumb bunny, for it surely looked out of place on a log surrounded by water. Using my very best Daniel Boone approach, I cut the distance from twenty to ten feet, six feet, five feet, four feet—then swoosh it happened!

"Bunny made a neat dive into the water, hopped twice (How, I'll never know, because the water was over its head) and started to swim with all the gracefulness and confidence of a muskrat. The highway and high land were a hundred feet to the right and I thought, "Surely bunny will make a dash for dry ground." But it didn't. A constant flow of traffic streamed by and, besides, the shoulders of the road were devoid of cover.

"So our little egg-head (the animal kingdom has them too) elected to escape by water. And the last time I saw bunny, it was still swimming—presumably to another log and safety.

(As most hunters know, our so-called bunny is a marsh rabbit and frequents wetland areas.)

—Ken Wilson

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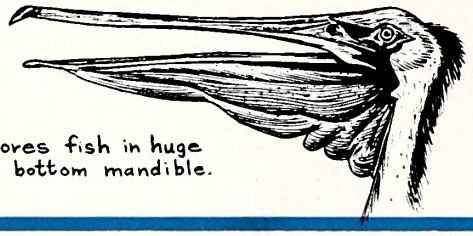
BIRD BILLS

And how their shape is adapted to their many uses

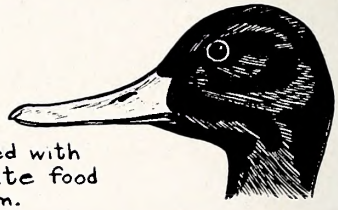
R.B. DANCE 56

PELICAN



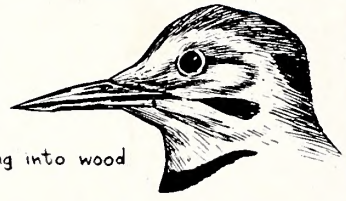
Catches and stores fish in huge bill with pouch on bottom mandible.

DUCK



Spoon-like bill equipped with strainers which separate food from mud on pond bottom.

WOODPECKER



Sharp-pointed bill for digging into wood for worms, beetles, etc.

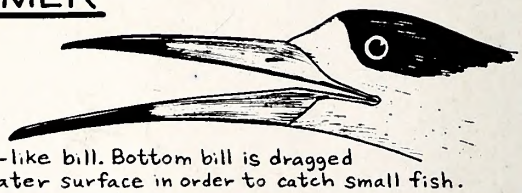
HAWK

Sharp-hooked bill for tearing flesh.

CROSSBILL

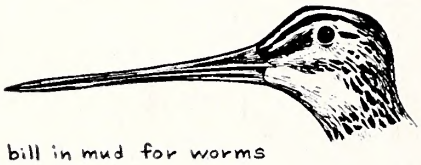
Mandibles are crossed which permits bird to pry open pine cones for food.

SKIMMER



Scissor-like bill. Bottom bill is dragged beneath water surface in order to catch small fish.

SNIPE



Probes with long bill in mud for worms and insects.

WARBLER

Small-pointed bill for catching insects and eating berries.

SPARROW

Strong, thick bill for breaking and cracking seeds.

HERON

Large dagger-like bill for capturing fish, frogs, etc.

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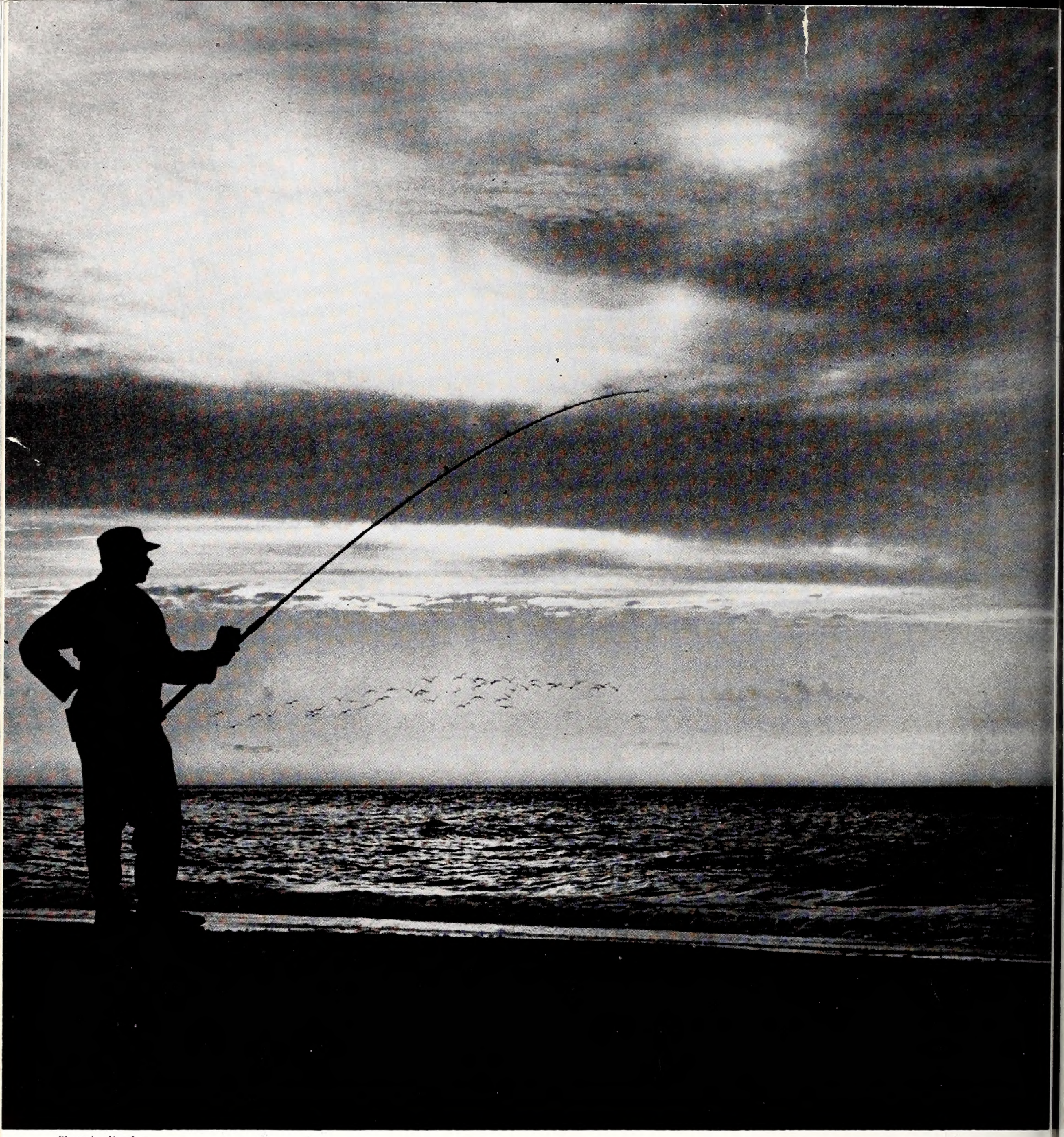

Photo by Jim Lee

Fisherman's Luck

What is your measure of fishing success? Do you count only the number of pounds of meat to be taken home? And do you feel a special sense of elation when you have taken the limit? Or do you count as part of fisherman's luck the bass that shatters the quiet of early morning as he leaps at an insect across the pond, and the rhododendron that hangs jewel-like over the trout stream? Do you consider the waves that lap at your feet and the gulls wheeling overhead as you stand in the surf? To some the trip is a failure unless a record catch is made; to others the fishing rod is the price of admission to a parade of sun and sky and water. Look closely next time; have you missed something?

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

"Who's that barking over my shoulder?" Just Mr. Squirrel enjoying life this fine morning. And a fine time to enjoy life it is, when everything is lush and green. There are more seeds than Mr. Squirrel can possibly stuff in his fat cheeks, and more berries than Mr. Bear can eat in a month of July mornings. All over North Carolina, ripening in the hot sun, are food patches planted by thoughtful sportsmen and landowners. Come the usual winter scarcity of native foods, they are the hunters who will reap the harvest of summer.

Cover painting by Al Barrett.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

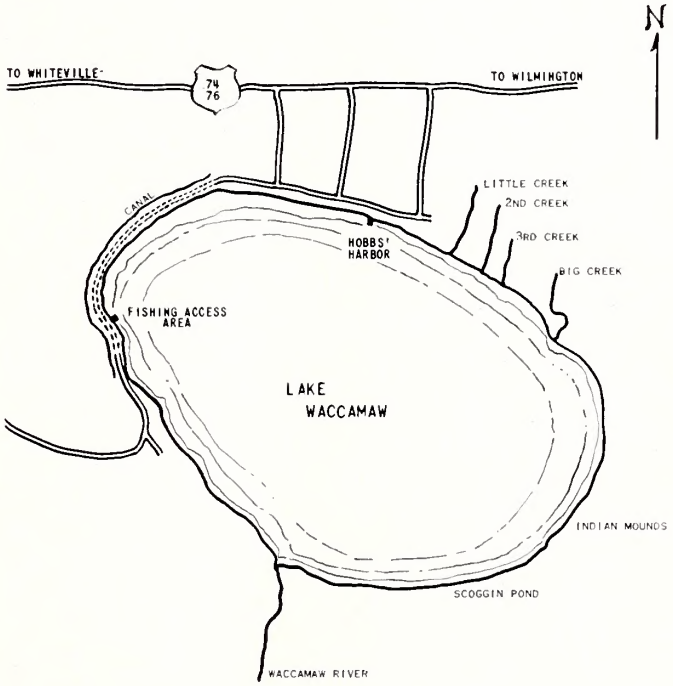
SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Looking for a place to fish? Here is the story of one of Southeastern North Carolina's top fresh water fishing spots — fabulous Lake Waccamaw.

LAKE WACCAMAW

By Darrell E. Louder
Fisheries Biologist
Photos by Jim Lee

This is another of a series of articles by fish biologists on the most popular fishing lakes in North Carolina.



Lake Waccamaw, 8,938-acre beauty spot and fisherman's paradise in Columbus county, is easily accessible from highway 74-76. Overnight accommodations, meals, and boats are available.

LAKE Waccamaw is the largest natural lake between Maine and Florida, and is located in the heart of Columbus County in Southeastern North Carolina. The shores of the lake are lined with large cypress trees draped with Spanish moss—providing a natural sanctuary for song birds and other wildlife species. To further enliven the scene, waterfowl stop during their trips to and from their nesting areas.

Spreading out in a lopsided oval, Lake Waccamaw covers 8,938 acres and is located fifteen miles east of Whiteville on U. S. Highways 74 and 76. It has a maximum depth of 10.8 feet with an average depth of 7.6 feet. The lake boasts a shoreline of 14.2 miles, about one third of which is dotted with hotels, fishing camps, homes and cottages. The maximum length of the lake is 5.3 miles.

Roughly 64 percent of the botton of the lake is sand, with the rest covered by fibrous and pulpy peat. Along the sandy edges vast numbers of emergent aquatic plants grow, providing an ideal breeding and hiding place for fish such as bass, bluegill, and chain pickerel.

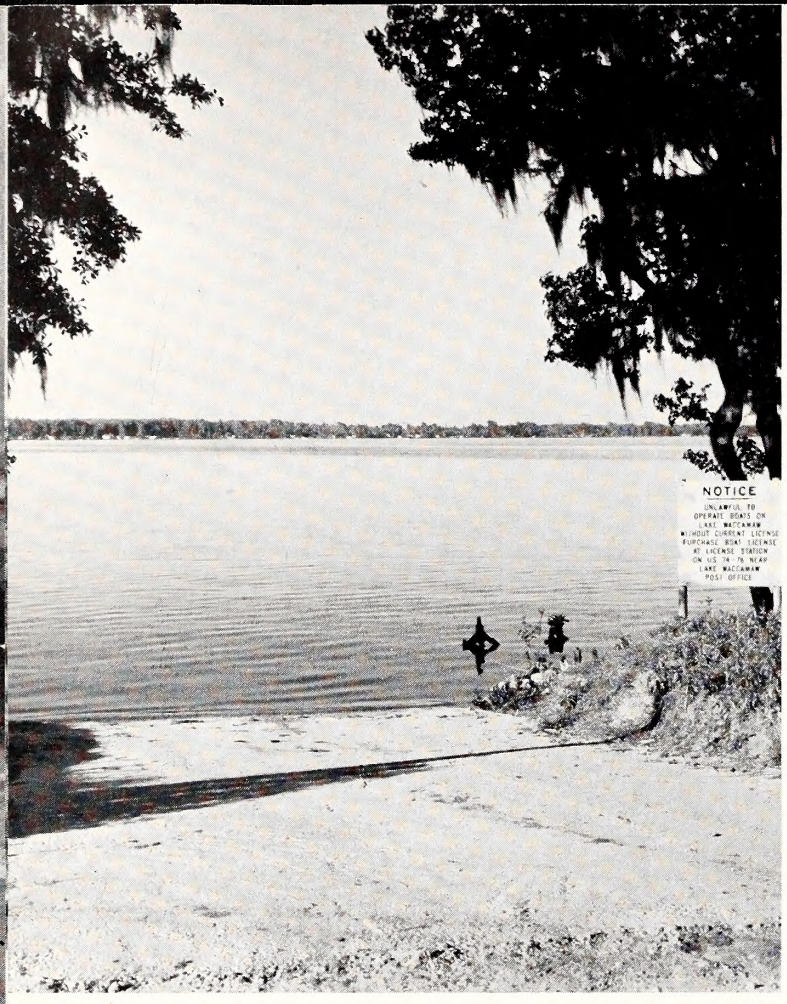
The large swamp north of Lake Waccamaw, with its water moccasins and alligators, drains into the lake through Big Creek, Little Creek, Second Creek and Third Creek. At the other end of the lake, along the southwest side, is the outlet—the beginning of the Waccamaw River. Large numbers of bluegills, catfish and black crappie are caught during the spring directly below this outlet.

History

According to one theory Lake Waccamaw was formed by a shower of meteorites, striking the earth thousands of years ago from a Northwest direction. Other lakes in nearby Bladen County are thought to have been formed the same way. A second speculation says that the lake was first excavated by water from artesian springs and enlarged by subsequent wave action. The theory is substantiated somewhat by the fact that artesian wells are still found above and below the lake. It has been estimated by the use of radiocarbon dates that the lake was first formed in the Wisconsin or Sangamon Interglacial Age. No matter when or how the lake was formed, it remains as one of North Carolina's best fishing lakes from March through October.

Access

The lake has one public fishing access area and three private access areas where boats can be launched. Lake regulations require a valid Department of Conservation and Development license on every boat operated on State lakes such as Waccamaw. Licenses may be obtained at a license station near the Lake Waccamaw Post Office on the main highway. The Wildlife Resources Commission's ac-



The Commission maintains a Fishing Access Area with parking and boat launching facilities. Since Lake Waccamaw is a part of the State Park system, a Department of Conservation and Development license is required for all boats.

cess area is located on the Dupree side of the lake. The area was purchased and developed with fishing license dollars. The area has ample space for parking cars and it has a concrete ramp leading into the water. The three private boat launching facilities are at J. W.'s Fishing Camp, Weaver Bathhouse, and Paul Batten's. The lake is accessible only from U. S. 74 and 76.

Fish Population

The fish population of Lake Waccamaw is considered extremely varied, since it includes thirty-three species of game, rough and forage fishes. This large variety gives the fisherman a wide choice from which to select his favorite fish. The important game fish found in the lake include largemouth bass, white perch, bluegill, black crappie, and chain pickerel. However, a lot of fishermen prefer to fish for rough fish such as white catfish, bowfin and carp.

Largemouth Bass

Good catches of largemouth bass are made in April and May and then again in September around the "grass" beds near the edges. In April and May it is more productive to fish for largemouth bass with deep running lures, even though these weed beds are found in water only about three feet deep. The favorite lures of anglers fishing this lake vary from Johnson Silver Minnow with a pork rind to a Bass Orene. During the early part of the summer the largemouth bass hit furiously on surface lures such as the Jitter Bug and the Hula Pepper. During late summer and fall the big ones hit deep running lures again.

It is a good idea to keep your eye peeled for a school of gizzard shad. Not too far away, hiding in the unknown, will be a largemouth bass waiting for the right time to devour a small gizzard shad. The wise fisherman will snap on a lure that closely resembles the gizzard shad and cast into the school.

Hobbs Harbor is one of the many commercial establishments catering to sportsmen. See table on opposite page for list.

Big Creek, one of the streams feeding the lake, is a favorite spot for black crappie. Three-pounders are frequently taken.

Creel limit on largemouth bass is eight and the size limit minimum is ten inches. Incidentally, a county law prohibits fishing on Lake Waccamaw at night.

White Perch

Lake Waccamaw contains many white perch and they are waiting to be caught. Netting surveys in the lake showed that the white perch makes up 51 percent of the total number of fish present. There is no chance that this species will be over-fished using angling methods. White perch do not hit artificial lures readily but they are favorites of the cane pole fishermen. Try a small hook and worms, shrimp or other cut bait. This fish runs in schools and usually several can be caught in the same place —often in the more open water. The white perch size limit in Lake Waccamaw is a minimum of seven inches with a creel limit of 25 in aggregate.

Bluegill

Large catches of bluegill are made from May through early September. During this period the bluegills are spawning and they can be taken from the beds in large numbers. These areas are usually located in weed beds or on the sandy bottoms near the shore. Bluegills will hit worms or crickets but the fly rod and wet or popping bug brings out the best in the bluegill. In Lake Waccamaw the size limit on bluegills is six inches, and the creel limit is 25 in aggregate.

Black Crappie

There is a good population of black crappie in the lake, with the largest concentration located in and around Big Creek from March through June. Catches of several two and three-pound crappies from this area are not uncommon. They can best be caught with small golden shiners and a cane pole or by trolling with a small artificial lure. The large ones are caught more frequently by using the latter method.

COMMERCIAL ACCOMMODATIONS ON LAKE WACCAMAW

	Boats	Bait	Tackle	Lodging	Snacks	Meals	Bathing
Hobbs Harbor	X	X	X	X	X		
Goldston Hotel	X	X		X		X	
Jones Hotel		X	X	X		X	
Weaver Bathouse							X
J. W.'s Fishing Camp	X	X	X		X		
Paul Batten	X	X	X		X		
Marvin Council		X	X	X	X		
Roy Duncan	X	X	X		X		

Chain Pickerel

The chain pickerel, or jack as it is called in parts of North Carolina, is a powerful fighter and will break your line if given half a chance. It will strike almost any type of artificial lure with the fury of a wildcat, and can be taken in and around the various weed beds and mouths of creeks.

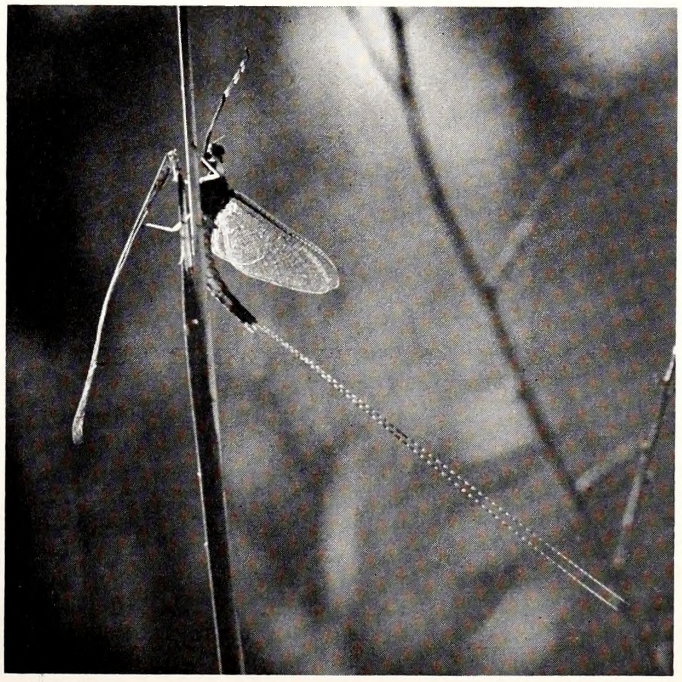
Catfish

White Catfish in Lake Waccamaw grow to a fairly large size—up to six pounds. The catfish can be caught in quantity by fishing with cut bait in the deeper parts of the lake. Allow the bait to sink to the bottom in the deeper places and wait patiently for that familiar tug at the end of your line.

Remember, if it's good fishing you want, don't overlook Lake Waccamaw in Columbus County, the largest natural lake between Maine and Florida.

Lake Waccamaw offers a variety of fishing opportunity with 33 species of game, rough and forage fish inhabiting its waters.

A mayfly, recently emerged from an aquatic larva, dries its wings preparatory to flight. Wildlife is abundant and varied.



PROWLERS

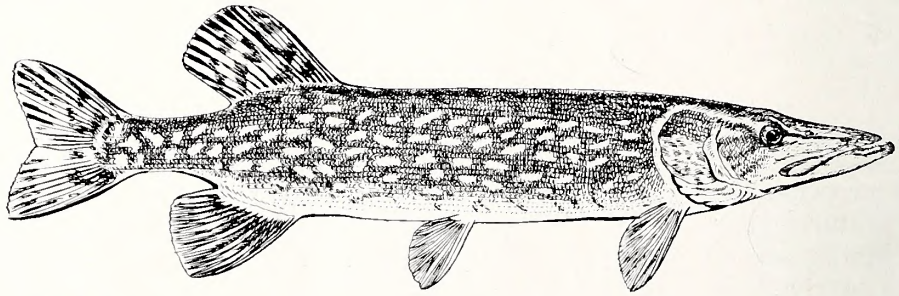
WHICH would you rather have—a hundred rough fish that won't take a hook, or five or ten game fish that will?" The sport fisherman's answer to this question is the reason behind a flurry of activity at two North Carolina airports in early May, when northern pike fry arrived from an Ohio hatchery. The two shipments of six thousand inch-long fry were given to the Wildlife Resources Commission to use in an experiment that may mean better fishing.

Next to its kissin' cousin the muskellunge, the northern pike rates as the most vicious predator in freshwater. The northern is almost always ready to take a swing at a trolled spoon or an oversized bass plug and he fights like a cornered wildcat. A ten-pounder is a good one, but a twenty-pounder isn't unusual. Sound good? Well, let's look into some of the rest of the story about this new fish for North Carolina.

After several years of prying into the private lives of the big Tarheel lakes, one of the facts that stands out in bold print is this: too many rough fish; particularly suckers and gizzard shad. Now these fish do provide forage food for bass and other game fish as long as they are bite-size. Unfortunately most suckers pass the mouthful stage before their second summer—and gizzard shad leave the menu by their first autumn. There's not much way of curbing the growth of these rough fish so the next step in trimming their numbers is to get a machine that converts them into game fish. Northern pike are specialists at this.

But will the pike survive and reproduce in North Carolina waters? The only sure way to find out is to try them here and see. Two shipments of six thousand inch-long fry, gifts from the Ohio Department of Natural Resources's Division of Wildlife, arrived at two North Carolina airports in early May. Thus began an experiment that may mean better fishing for Tarheel anglers.

In body shape the northern pike resembles the chain pickerel, or jack. The general body color is dark green or bluish-green marked with bean-shaped, cream-colored spots. The record weight for chain pickerel is around ten pounds, but the northern pike reaches forty pounds and more in its native range. The northern is found in a wide belt that completely encircles the globe, but the southern



Will the northern pike prove to be one answer to a fisheries problem? Only time will tell with the prowlers of the weedbeds.

Cartons containing northern pike fry were loaded into a station wagon for the trip to a rearing pond in the Sandhills. The fish survived the quick trip from Ohio in excellent condition.

Six thousand northern pike fry were in this shipment flown from Ohio to North Carolina. These fish were brought to Raleigh-Durham Airport; a similar shipment of six thousand fry went to Asheville. The fish are being tried experimentally in several locations in North Carolina to learn if they will help control excessive numbers of gizzard shad and suckers. The fry were made available to North Carolina by the Ohio Division of Wildlife from their northern pike hatchery.

OF THE WEEDBED

Photos by Bob Humphries

boundary of its range misses North Carolina by over two hundred miles to the north. Summer temperatures in parts of its range reach the mid-eighties—which means that the pike may be able to survive in even the warm waters of eastern and central North Carolina. Only time will tell.

Why try to bring northern pike so far out of its range? What's the matter with our native fish, except that perhaps they don't always bite as readily as we'd like? Fish biologists recommend introductions of new species only under certain circumstances. There must be vacant living space for the new fish, and the food that the new fish will eat shouldn't place him in competition with desirable species that are already present. For the introduction to be worth trying, the habitat must be suitable —water temperatures must suit the fish, and spawning requirements must be met. And always, the fish biologists ask themselves if the new fish will prove to be a threat to native fish that we want to keep.

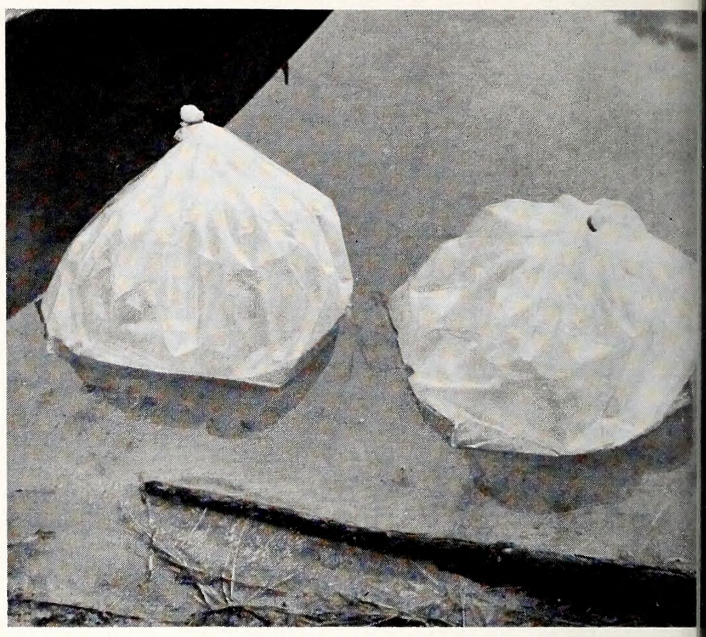
The thing gnawing most at the minds of the fishery men is whether or not any of the Tarheel waters have suitable spawning areas for the northern. He will probably survive (the ones retained in the hatchery ponds for a couple of months grew nicely), but unless he can reproduce, the species will provide no sustained fishing and will be a failure. Since this spawning aspect is so important let's look more closely at the pike's requirements:

In its native range, the northern begins spawning operations not long after the ice is out. Water temperatures may still be in the low forties when the big pike glide into the egg-laying grounds—weeds. Shallow bays with aquatic vegetations, weed-choked marshes, areas with water plants so thick the big northerns barely have swimming room, these are essential to egg survival. No nest is built, but rather the eggs are scattered over the aquatic vegetation. The ones that settle to the bottom are usually lost and do not hatch. The pike do not guard the eggs or fry, and soon return to the main lake to start their spring feeding. Where in North Carolina lakes do you find such a combi-

nation—shallow weedy areas, preferably off the main body of water? The most likely spots have been selected for introducing the northerns.

Several introduction of "foreign fish" have already been tried in North Carolina, including two that have been very successful. In several of the Piedmont power reservoirs the water fluctuates up and down due to the demands of power production. Largemouth bass, which spawn in nests, were having difficulty when water levels were drawn down too soon after spawning. White bass don't build nests; they go upstream and spawn in the flowing waters of tributaries. White bass have proven successful in several reservoirs, thriving on gizzard shad that are not missed by either fishermen or largemouth bass. The gizzard shad don't take hooks; and remember only the smaller ones are suitable food for game fish. Walleyes were brought in to control the shad and to provide more fishing themselves.

If the northern makes it, what can we expect in the way of fishing? Well, it undoubtedly will be best around submerged weed beds (there they are again). Spring fishing will be good, and even in mid-summer the pike will cooperate to some extent. The fall may see the northerns go on a feeding spree, and even during the winter pike will be caught. On the table the northern will definitely take a backseat to the walleye and bass, and may even lose out to the panfish. But make no mistake: he's good eating even with the numerous forked bones encountered.



The fry were shipped in plastic bags containing water and oxygen. This is a new development in fish handling; recently minnow dealers have begun shipping live minnows in similar plastic bags.

If some of the twelve thousand northern pike fry flown in from Ohio survive, this will mean a new vigorous species for the angler to catch. It will mean better utilization of our fishing waters—if the pike feed on the suckers and other rough fish that now plague many of our waters. If the pike finds the weedy areas and will spawn successfully, and can survive the high temperatures found in much of our water in mid-summer, it should shorten the time between bites for a lot of fishermen—and when twenty to forty pounds of northern pike takes hold, you can count on a battle. There are a lot of if's and and's, and but's to be considered at this point, however. It's anything but a "sure thing", that's why stocking locations are all-important.

The Wildlife Commission has stocked six lakes—two in the coastal plain, three in the Piedmont, and one in the mountains—in an effort to learn more about the possible value of the northern pike in North Carolina. There are two sides to the coin. The results may mean better fishing in many waters. Or we may find that, for some reason, northern pike will not do the job that biologists are hoping they will. Either way, it's a good bet when the stakes are low and the possible returns are high. Only time will tell.

The fish were placed in a rearing pond at the Sandhills Wildlife Management Area until suitable release areas were selected. Weedbeds are high on the list of requirements for northern pike.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

1958 - 1959 Hunting and Trapping Rules Set

The Wildlife Resources Commission has set the official upland game hunting regulations and the trapping regulations for the 1958-1959 season, and the new rules are in the process of being printed. Only minor changes were made over last year's rules. The Commission set the regulations after considering the opinions of sportsmen at a series of nine public hearings prior to the rules-setting meeting in Raleigh. Copies of the regulations will be available from license dealers throughout the state by August 1.

Hunting and Combination Hunting-Fishing Licenses Needed August 1

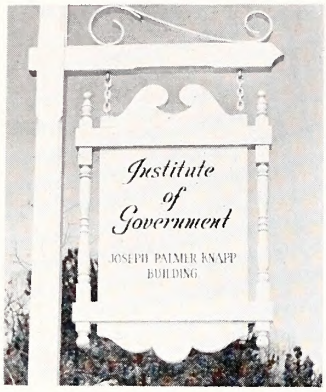
If you hold a hunting license or a combination hunting-fishing license, it will expire on July 31. The new licenses will have been distributed to license dealers by that date, as will the official hunting and trapping regulations. Since waterfowl regulations are set by the federal government, the new rules will not be available before late August. Copies may be obtained from the U. S. Fish and Wildlife Service, Washington, D. C.

N. C. Ranks High in Public Fishing Access Areas

By the end of 1957 29 states had acquired or developed 1,579 sites for access to 1,284 lakes with a total of 470,555 acres of water outside public parks, with other access sites making access available to 6,390 miles of rivers and streams. North Carolina has at least 40 access areas, and is unique in that each has boat launching facilities. In many states launching ramps are the exception rather than the rule.

Fontana Authorities Not Worried About Fish Spawning

In response to concern on the part of fishermen that water fluctuations in Fontana Reservoir had hurt fish spawning, TVA officials have pointed out the following: water reached spawning temperatures on May 12 when water levels stood at 1,684.85 feet At the end of the first week of the spawning season, levels stood at 1,691.89 feet, and by June 8, a period of 28 days from the beginning of the spawning-hatching period, levels stood at 1,689.95 feet. Water level decline from May 28 to June 8 averaged 0.35 feet per day, and this rate of decline was expected to continue at that rate until the end of June. TVA biologists expressed belief that this rate of decline was not sufficient to affect fish spawning, and that a successful spawn of bass and panfish occurred during the season. Water levels on June 8 had not yet lowered to the point at which they stood on May 12 when the spawning season began, and spawning should have been completed by June 8.



At the University of North Carolina

Wildlife Protectors go to SCHOOL

Photo Feature by Jack Dermid

NORTH CAROLINA'S wildlife protectors are rapidly becoming the best trained in the nation," commented Chief Ben H. James recently. "Combine sound training with the best of modern equipment and you have a crack team that is the master of any situation."

But trained men just don't happen. To keep up with the latest techniques of law-enforcement, wildlife protectors need to go to school periodically, and Tarheel protectors do. The entire Protection Division has recently completed an intensive seven-day course at the University of North Carolina's Institute of Government. The training was a followup for the longer school all protectors are required to complete prior to their employment. In order not to leave our fields and streams unguarded, the men came in groups of about thirty.

Classwork consisted of a comprehensive review of game and fish laws and of the laws of search and seizure, evidence, and arrest. Protectors held mock trials to learn proper courtroom procedures. In the laboratory, they learned how to take fingerprints and the fundamentals of reading them. In the field, they learned how to collect, label, and preserve evidence. Fingerprints were lifted from cars and plaster casts were made of tracks. Since all protectors may some day face a tough violator, the men were taught the best ways of defending themselves in a gunfight or in hand to hand combat.

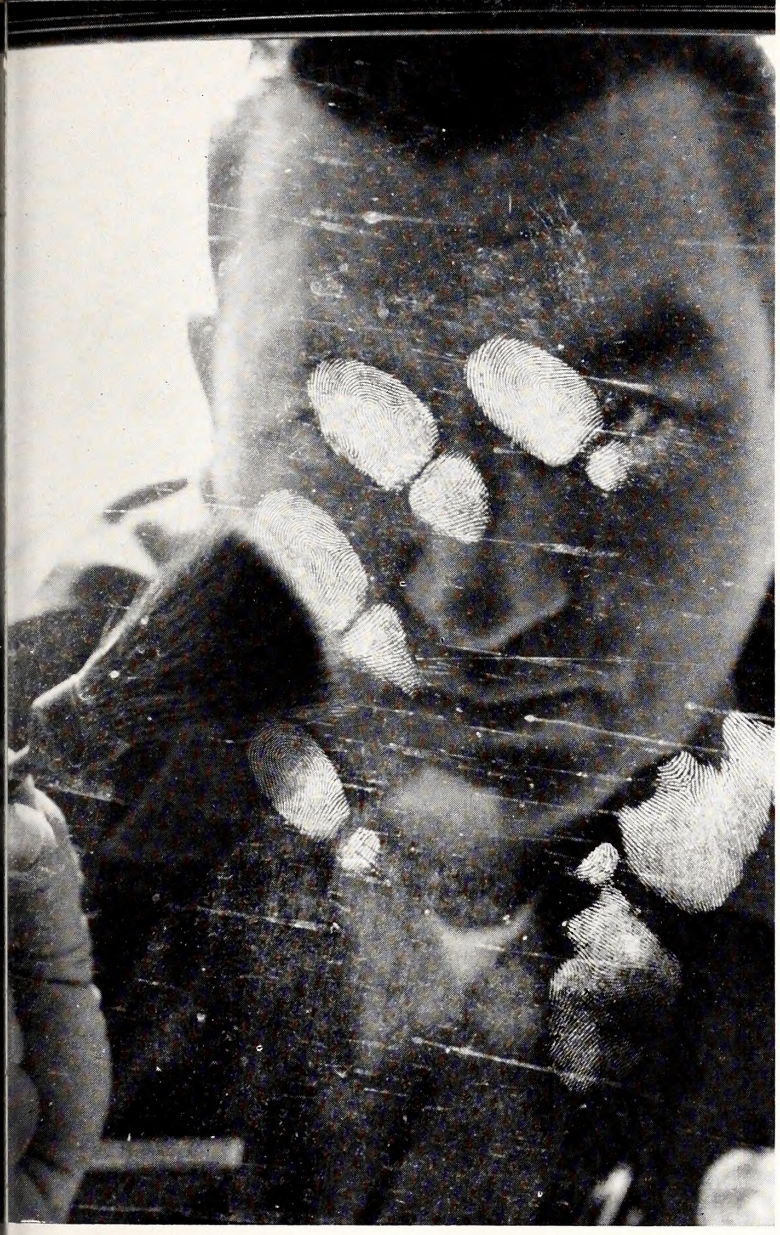
It was not play school. Classes began at 8 a.m. and lasted until 9 p.m. and after that, there was homework—laws and references to find in the library, reading assignments, charts to draw. There was no loafing either, for the men realized they were in school to become better protectors, and they wanted to learn. Regular quizzes kept them on their toes, and all assignments were graded.

The new facilities of the Institute of Government—where highway patrolmen also receive their training—were made available to the Protection Division, modern classrooms, comfortable dormitory rooms, and the Institute's experienced staff.

"This is just the beginning," says Chief James. "There will be another school next year . . . and the next."

Classroom lectures on fish and game laws and various law-enforcement procedures were followed by comprehensive quizzes.

RIGHT: Using latest police techniques, a protector makes a handprint on an automobile window jump into visibility.



Protectors learn to take fingerprints, a skill they may need in booking serious violators.

Rapt attention of this protector is typical of the enthusiasm and interest shown by the men.

Outside, protectors practice making plaster casts of footprints and gathering other evidence useful in the courtroom.

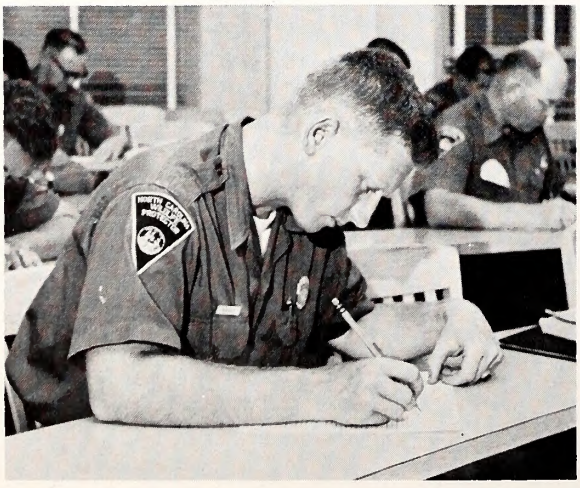
Behind the Institute's modern building, a class in judo goes into action. Protectors must know how to defend themselves.

PROTECTORS' SCHOOL (Cont.)

North Carolina's wildlife protectors are rapidly becoming the best trained in the nation.

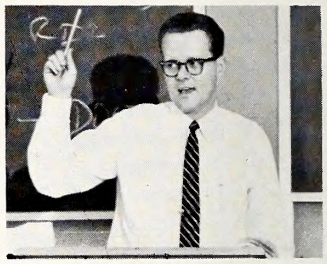
"At the signal," shouts Neal Forney, "blast the target from the hip. You don't have time to aim. Do it by instinct."

Time for examinations comes, then graduation. All agree it was a week of achievement!

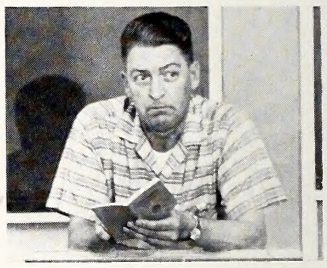


Quotes from the Faculty

Neal Forney, Assistant Director of Institute of Government: "Sure, this school is tough. It has to be. But it is not as tough as a protector's job can be. Our aim is to prepare the men for any eventuality."



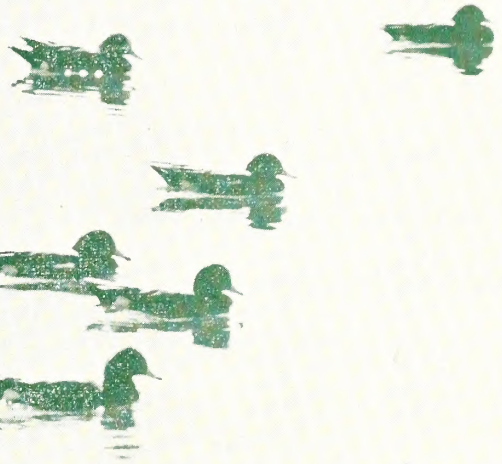
Dexter Watts, Legal Staff, Institute of Government: "The protectors have done a good job in the past, but we believe that if they know the reasons behind the laws they can do an even better job."



W. C. Bumgarner, Burlington lawyer: "All protectors are lawyers to a certain extent—in the field that they operate. They have to be."

To help each other learn correct positions and shooting techniques, protectors work in pairs on the pistol range.

Production of Waterfowl Foods by the Summer Draw-down Method



By T. Stuart Critcher
Game Management Coordinator

Increased public interest in the production of waterfowl foods and in the development of small, private waterfowl areas has resulted in a great number of requests from individuals for information and technical assistance. The development of waterfowl areas on a state-wide basis is rather complex, both from the engineering and biological points of view. Each area has its own peculiarities and problems, therefore, no "blueprint" management plan can be drawn to fit the requirements and needs of the many different conditions found in North Carolina.

Probably the simplest and most productive type of waterfowl management which can be economically undertaken by the average landowner or small organization is known as the summer draw-down method. This technique generally involves planting an area to a suitable food crop and flooding the matured crop in the fall or early winter in order to make it available. Such areas are readily used by ducks. Use by Canada geese can be expected to be much less frequent.

In the selection of an appropriate site for employing the drawn-down method of duck management, there are several points to keep in mind:

(1) *Size.* The size of the feeding areas is not critical if there is an adjacent pond or large area of water. If possible, the pond and the draw-down area together should total at least five acres, although limited use may be expected on areas as small as one acre.

(2) *Location.* The management area should, if possible, be located near a stream, river, lake, or pond which is naturally frequented by ducks. This, of course, is not an absolute necessity, but it should result in earlier use by larger numbers of birds.

(3) *Physical Conditions.* Good soil and an adequate water supply are necessary. The site must also lend itself to shallow flooding in the fall, and to sufficient drainage in the summer to allow cultivation, planting and production of the food crop. Several general types of sites meet these requirements, including farm pond margins or shallow flats; low areas below the farm pond; wooded bottomlands; marshes; and croplands or low pastures.

In order that the proper degree of flooding can be accomplished in the fall or early winter, a low levee or terrace is required. This structure need be only high enough to hold water from 1 to 15 inches in depth. Flooding deeper than 15 inches results in the food being unavailable to tipping ducks such as mallards and woodducks. A simple drop-board control structure should be installed at the outlet of the levee or terrace. With this type of water control, depths can be maintained automatically at the required level. The structure is, of course, opened completely in order to drain the area prior to cultivation. A shallow ditch through the area often facilitates more adequate drainage. The area should remain flooded through April in order to provide food and a resting place for wintering ducks and the spring migrants.

A dependable water supply which can be easily diverted into the impoundment is very important. This supply may be a farm pond, a stream, or a deep well. Pumping is sometimes used, however, gravity flow is much more economical. Rains are a valuable addition, but cannot be depended on entirely.

When the margins or shallow flats of an existing farm pond or lake are to be used for planting duck foods, the procedure is simplified to manipulation of the water level. In most ponds, water can be held at the required levels by use of existing structures. Where this is not the case, the outlet structure can be modified to meet this requirement. Often this is as simple as adding an extension collar to the standpipe or by cutting off 15 inches of the existing standpipe and using this piece as the extension. The

● See WATERFOWL FOODS Page 19

Where Conditions Permit, It Is Good Wildlife Management To

HARVEST *Antlerless* DEER!

By Kenneth J. Chiavetta
Leader, Big Game Restoration
Photos by Jack Dermid

NOT much could be done to control deer populations which threatened to destroy themselves by their own productivity until a law was passed in 1957 by alert Tarheel legislators permitting the North Carolina Wildlife Resources Commission to establish special antlerless deer seasons where and when needed. As a result of this action a dividend of almost eight tons of venison, which otherwise would have been wasted, was harvested by North Carolina hunters. Between the passage of the "doe" law and this harvest two important steps were taken to insure full agreement as to implementation of the new law.

Representatives of the Wildlife Resources Commission and the United States Forest Service met in the early summer and decided upon the areas which should have the special antlerless season and the duration of this special season. This proposal of having a one-half-day antlerless deer season on the Monday following the regular two-week buck season on the Pisgah, Mt. Mitchell, Daniel Boone and Unharrie Wildlife management areas was endorsed at public hearings held at Asheville, Morganton and Troy.

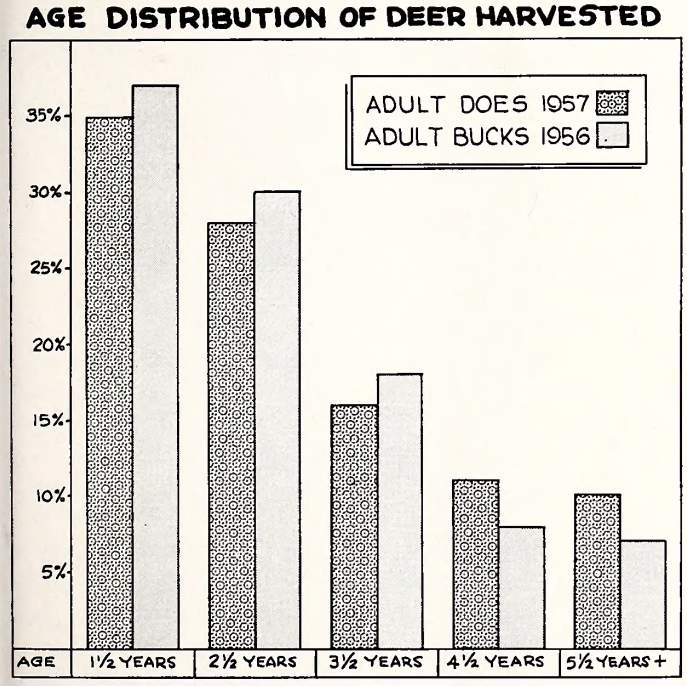
Another public meeting was held concerning a section of Burke County, adjacent to the Daniel Boone Wildlife Management Area, which had considerable agricultural crop damage by deer. It was decided to open this area to antlerless deer hunting simultaneously with the special half-day season established for the management areas. Although a longer season would have been more effective in herd control, the one-half-day season was designed to acquaint the sportsmen and our field personnel with the technique of antlerless deer hunting under Tarheel conditions, and to provide valuable information which could be used to determine the necessity for other antlerless deer seasons.

All deer taken were checked by respresentatives of the Wildlife Resources Commission and special tags were attached to the ear of the deer to permit their legal transport outside the area where this special season was in effect. Most of the deer were aged, measured, weighed, and, where possible, ovaries were collected for breeding potential studies. The total antlerless deer kill on the management areas was 177, with 53 deer taken at Pisgah, 14 at Mt. Mitchell, 53 at Daniel Boone, and 57 at Uwharrie. In addition, 40 deer were checked for the special Burke County hunt, making a state-wide total of 217 antlerless deer killed.

Of course, some antlerless bucks were taken—about one out of five deer killed were males. Fawn does were taken in the same ratio—the balance of the kill was mature does ranging from yearlings to 9½ years in age. The actual figures were 42 fawn bucks, 46 fawn does, and 115 adult does. Table I shows the age and sex composition of the kill by checking station. There were no great numbers of old does. This means that if the doe deer are not harvested, they succumb to natural mortality. There is no accumulation of barren old does. If they are not harvested they go to waste. Of the 203 deer which were aged only 5 percent were 5½ years

TABLE 1. Age and sex composition of 203 deer checked during the antlerless deer season, 1957.

Checking Station	Fawn Bucks	Fawn Does	Adult Does	Totals
PISGAH				
Davidson River	9	5	16	30
North Mills	3	3	3	9
MT. MITCHELL				
South Toe	0	3	11	14
DANIEL BOONE				
Fox Camp	9	7	19	35
Edgemont	1	1	7	9
Kawana	1	0	8	9
UWHARRIE				
Eldorado	10	14	33	57
Total Kill	33	33	97	163
Percentages	20.2%	20.2%	59.6%	100%
Burke County Kill	9	13	18	40
Percentages	22.5%	32.5%	45%	100%
Statewide Kill Totals	42	46	115	203
Statewide Percentages	20.7%	22.6%	56.7%	100%



Field data, graphically shown above, prove that no great numbers of old does accumulate under the "buck law" and if doe deer are not harvested, they succumb to natural causes.

or older. The age composition of the 115 mature does parallels closely that of mature bucks.

It is interesting to make a comparison of the success of the hunters during the regular buck season with that during the antlerless deer season. The results are not strictly comparable since the antlerless season was only of one-half day's duration. The figures from Daniel Boone are fairly typical of what happened on the other areas: during the buck season it took 3273 hunters to kill 182 deer with a resulting hunter success ratio of one deer for 18 hunter-days. During the antlerless deer season at Daniel Boone 53 deer were killed by 559 hunters—about one deer for every ten hunters. Mt. Mitchell had similar hunter success.

A comparison of hunter success for the first day of the buck season at Daniel Boone with that of the half-day's antlerless deer season demonstrates that there was also a variability by checking station (Table 2). It will be noted that the hunter success on the opening day of the buck season is almost the same as that which occurred throughout the buck season. Tarheel hunters found out that while hunter success was higher during an antlerless season than during a buck season, it was not as easy to make a "doe" kill as they had expected. Several hunters remarked that during the antlerless hunt that they saw more bucks than does!

As mentioned earlier, deer ovaries were collected for breeding potential studies. The breeding history of the deer is revealed through the study of their ovaries. Seventy-seven pairs of ovaries were collected and preserved in formaldehyde. These deer ovaries are small—about the size of black-eyed

When a deer population is in balance with its food supply, adult does produce an average of two fawns each. Birth rate is less on over-stocked range, such as on Mt. Mitchell where fawn production is down to 1.35.

TABLE 2. Hunter success at Daniel Boone—buck season compared to antlerless deer season, 1957.

SEASON	CHECKING STATION			
	Fox Camp	Edgemont	Kawana	Total
BUCK SEASON—ENTIRE SEASON				
Hunters	1,723	760	790	3,273
Deer Kill	87	53	42	182
Hunter-Days per Kill	20	14	19	18
BUCK SEASON—OPENING DAY				
Hunters	261	165	181	607
Deer Kill	11	12	9	32
Hunters per Deer Kill	24	13.8	20.1	18.9
ANTLERLESS DEER SEASON				
Hunters	303	119	137	559
Deer Kill	35	9	9	53
Hunters per Deer Kill	9	13	15	10.5

peas. Included within these "peas" are two types of smaller bodies which are visible to the naked eye. The larger bodies, called *corpora lutea,* are a cue to the current season's breeding record. The smaller, barely visible brown-colored bodies are *scars* of the previous season's corpora lutea. Together, they depict a two-year record of the breeding history of the deer. Although these bodies can be detected by holding the ovaries up to an electric light bulb (similar to the candling of chicken eggs) a more conclusive technique called "sectioning" is employed by the biologist. This consists of cutting the ovary into thin slices. The corpora lutea and scars are then identified and recorded.

The total corpora lutea counts and total scar counts may be averaged to give a single index—the *mean ovulation rate* which for all practical purposes may be considered to be the number of fawns produced by each doe in one year. It is surprising how much information can be gleaned from the deer ovaries. Some of the high points derived from their examination were as follows:

1. **Thirty-seven and one-half percent of the fawns had been bred. This means that approximately one-third of the six-months-old deer would have had a fawn at about the time of their first birthday.**
2. **The mean ovulation rate of fawns was 0.16 for Uwharrie, 0.33 for Pisgah, and 0.42 for Daniel Boone. For ranges which have not become overstocked with deer this figure would be 0.50 per fawn.**
3. **Eighty-six percent of the yearlings had been bred. Each yearling was scheduled to produce a solitary fawn.**
4. **Evidence of the current season's breeding was found in 93 percent of the adult deer examined. All of the deer examined had been bred at least once during the past two seasons—including a 9½-year-old doe which had twins last year.**
5. **The average ovulation rates (i.e., fawn production) for adult does were not uniform for the areas:**

   Uwharrie 1.48
   Mt. Mitchell 1.35
   Daniel Boone 1.72
   Pisgah 1.75

   These figures would be about 2.00 if the herds were in balance with their range on these areas. The fact that ovulation rates are less than 2.00 per adult doe is an indication that the range is overstocked.

From the above, it is evident that herd control using antlerless deer hunts was necessary and will continue to be necessary if healthy deer herds are wanted on these areas. This type of control arrived at the eleventh hour in the cases of Daniel Boone and Pisgah—for the ovulation rates had just begun to decline. On the other hand, the breeding rates for Uwharrie and Mt. Mitchell reflect the continued effect of too many deer on the range. These are instances where the sensitive reproduction system of the deer reacts to the range condition by having a lowered breeding rate. When a range becomes overpopulated with deer a new balance is created—breeding continues, but at a lower rate with deer weights and measurements falling off. In other words—only a specified number of pounds of venison can be produced on a given range, regardless of the number of deer present.

The 1957 antlerless deer season has served to give the Wildlife Resources Commission information which will prove valuable in the planning of future seasons of this type. Some idea of the expected magnitude of the deer kill, the breeding potential of the deer, hunter success ratios and the expected drain on doe fawns and immature bucks was gained as a result of this half-day season. Cooperative sportsmen have helped the Wildlife Resources Com-

On several wildlife management areas, the deer herd has increased to the point where planted pastures are clipped close to the ground or even completely eaten out. Wire enclosures, as shown below, are used to gauge intensity of deer use.

Browsed pine is an indication of a severe shortage as deer refuse pine when more palatable foods are available. Commission biologists keep a close watch on range conditions.

A deer dead of starvation is a waste of both food and sport. When a herd has reached the optimum population, it is good wildlife management to harvest doe deer.

mission test this technique on management areas and on private land. Confidence has been gained that we can have safe, efficient antlerless deer seasons without a large illegal kill of bucks. Where do we go from here? Was the antlerless deer season long enough to be of benefit to the deer herds and deer range on each of these management areas? Has any damage been done to any of these deer herds? These and other questions are expected to be answered in the near future.

Population studies are continuing to determine the effect of the regular buck season and the special antlerless deer season upon the deer herds. After the post-seasonal (spring 1958) deer population levels have been determined by deer drives, deer pellet group counts and other means, the deer population level of next hunting season can be predicted for these areas using the fertility rates which were obtained during the antlerless season of 1957. Range condition surveys inside and outside the management areas, investigations of agricultural crop damage by deer and public hearings will all serve to determine our future course in deer herd management. It is evident that we will need antlerless deer seasons this fall. With the wise use of this technique we hope to continue a deer management program which will provide the Tarheel hunters with more and better hunting opportunity.

WATERFOWL FOODS

from page 15

existing pond level in relation to the height of the dam will determine which method is most practical.

Among the more desirable cultivated crops which are readily eaten by ducks are: corn, buckwheat, soybeans, milo, browntop millet, and Japanese millet. Under the draw-down management system, volunteer stands of smartweeds, wild millet, and bullgrass may be obtained by simply disking the wet areas. Wildrice and other expensive seeds and plants, which are commonly advertised, are not generally recommended.

Probably the one most satisfactory species for normally dry soils is browntop millet. The seed is readily available from commercial sources at about ten cents per pound. It matures in 60 days and produces about 1,500 pounds of seed per acre, when fertilized. Browntop millet should be planted in July. Disk or plow the site and drill or broadcast at the rate of 20 to 25 pounds per acre. A complete fertilizer (5-10-5, 6-8-6, or 8-8-8) at the rate of at least 500 pounds per acre should be applied. On wetter soil, Japanese millet is better adapted. Planting techniques are the same as for browntop.

In the event that the above methods cannot be applied to a particular site or to particular conditions or objectives, there are other techniques which may be employed. On the spot advice may be obtained from the North Carolina Wildlife Resources Commission's district game biologists. For convenience their names and addresses are listed here.

Mr. John C. Oberheu
820 Williams Street
Kinston, North Carolina

Mr. David L. Taylor
Box 901
Albemarle, North Carolina

Mr. Charles B. Woodhouse
Holly Springs,
North Carolina

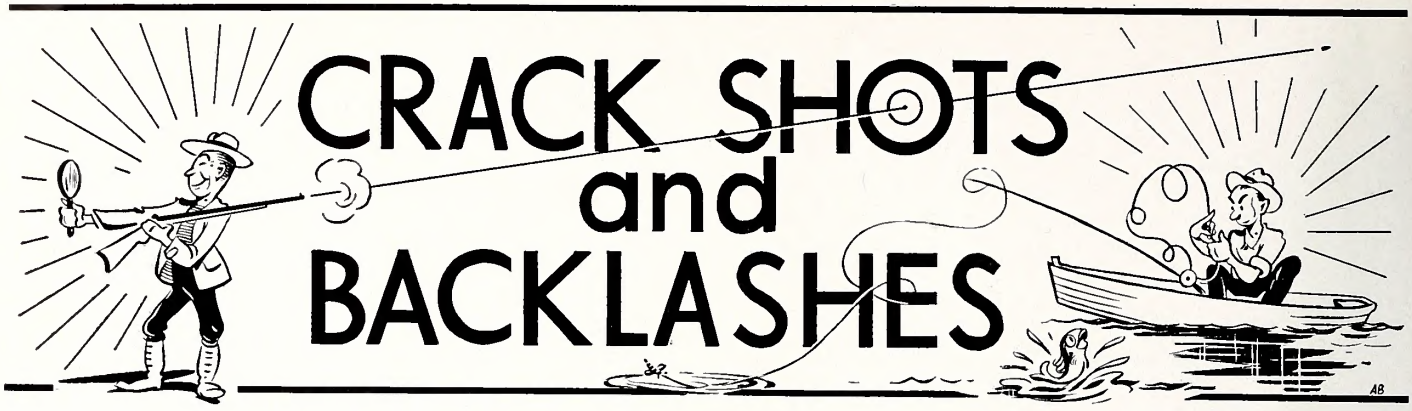
Mr. Ted R. Mitchell
P. O. Box 216
Clemmons, North Carolina

Mr. Sam F. Poole
P. O. Box 465
Lumberton, North Carolina

Mr. Ralph A. Bitely
Route 2, Box 15-B
Morganton, North Carolina

Mr. Grady L. Barnes
Box 1295
Burlington, North Carolina

Mr. Rex L. Bird
1619 Kensington Avenue
Hendersonville, N. Carolina



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Homer Circle, James Heddon's Sons' crack adman comes up with this ditty for the benefit of bass fishermen:

For the grassy flavor bass
have in 'em,
Never scale 'em, always
skin 'em.

There are several schools of thought on the subject of preparing black bass for the table; our main interest is catching the darned things. Harry Cornell says it is not the skin that gives an off-color flavor, but the layer of tissue just under the skin and also the "false kidney" along the backbone.

On the subject of bass, we fell for a good one the other day. Guy said he hooked a seven-pound, six-and-one-half ounce bass the other day, but it broke the leader just as he got it to the boat. I finally asked how he knew the weight of the fish if it got away. The fish, he said, had scales.

"Dear Sir:

"I am interested in the Bluebird and have put up one house according to instructions. Could you please give me any information on how to bring the bluebirds to my garden. Last season I saw two near the house after mating season, and was sure they would come back this spring, but so far we haven't seen any. Our garden is a wooded area and the present house is near a thicket of hedge. Could it be that it needs to be more out in the open? I will appreciate any information.

Yours sincerely,
Mrs. W. H. Parsons, Ellerbe"

"Dear Mrs. Parsons:

"Bluebirds seldom have an aversion to nesting boxes, and it is rather difficult to explain why your house has not been used. It might be wise to relocate the house away from the hedge and place it on a tree in more open surroundings.

"The birds may have found a natural cavity and used this, because that is the natural nesting site and to the bluebirds may be more preferred than your bird box.

"We would be glad to know if relocating the bird box has induced bluebirds to nest. May we use your letter in "Crackshots?"

Yours sincerely,
W. L. Hamnett
Wildlife Education Representative"

"Dear Sir:

"I always enjoy WILDLIFE IN NORTH CAROLINA. You are doing a wonderful job. I look forward to each issue.

"This year I bagged a pintail in Currituck Sound off Knotts Island on the last day of season, January 15, 1958. It was wearing a band which I sent to Department of Interior. I have just received the following from the Department:

Species: Pintail, Adult female
Banded at: Little Prairie Farm
Saginaw, Michigan
Date: April 26, 1957
By: Shiawassee Wildlife
Management Area

Yours sincerely,
George Skinner
Portsmouth, Va.

"Mr. Hayden W. Olds, Chief
Division of Wildlife
Department of Natural Resources
Columbus 12, Ohio
Dear Hayden:

"The Commission joins me in thanking you for the assistance you have extended in one of our serious fish management problems. The two shipments, totalling 12,000 northern pike fry, arrived in excellent condition. Some were stocked directly, and some were placed in hatcheries to be reared to a larger size before stocking.

"One of our serious rough fish problems is the abundance of suckers, especially in the piedmont and eastern sections of the State. Harry Cornell reports high hopes that northern pike many provide a biological control for them and, at the same time, replace some of their numbers with a desirable game fish.

"We recognize the likelihood of failure in this attempted introduction because we are considerably farther south than the normal range of the species. However, we do greatly appreciate your help in making this attempt possible. Your Mr. Clarence Clark has done an admirable job in advising our personnel and in preparing and making the shipments. Please extend our thanks to him also.

Cordially and sincerely,
Clyde P. Patton
Executive Director"

-'Dear Sir:

"I am enclosing a little piece on wildlife, which I wrote for our local paper. It has been favorably received. If you care to use it anyway, you may do so.

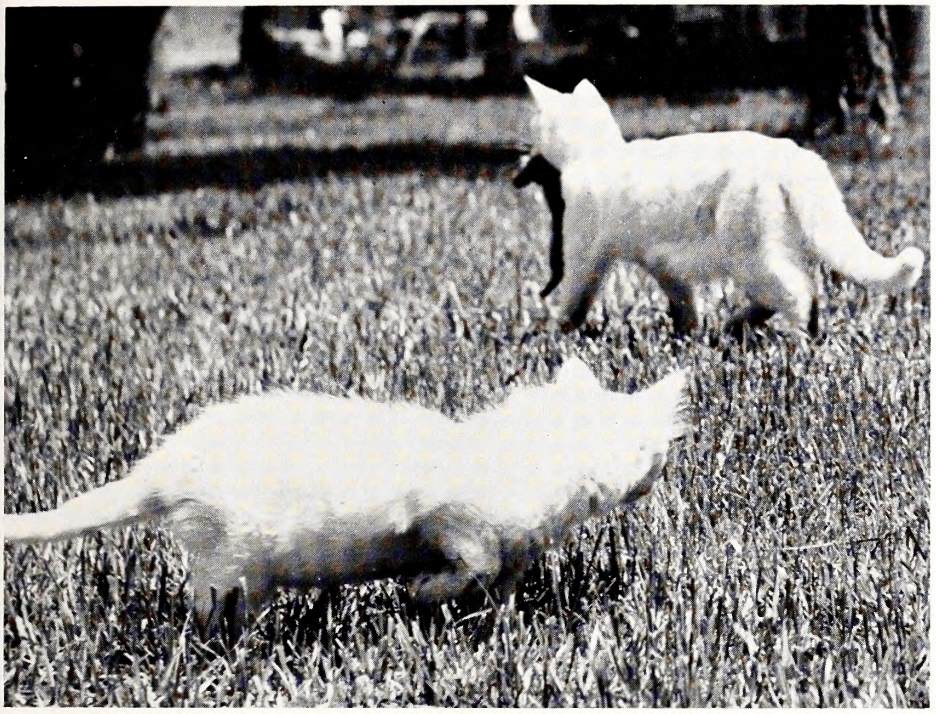
Yours sincerely,
A. D. Hopkins
Reidsville"

"Now is the time for all good sportsmen to come to the aid of their widlife.

"Many times during the scope of our lives we do not realize the pleasure, the beauty and even the economic value of the common place things around us until we lose them. The writer is thinking of the wildlife of North Carolina which we all love so much.

"It is no secret that for the last few years our wild game, both birds and animals, have been waging a losing battle for survival. They are doing their best to obey the divine command to multiply and replenish the earth, but unless the true sportsmen and lovers of nature come to their aid they are doomed to defeat.

"Will the time ever come when the turtle dove and the whistle of the bobwhite will no longer be heard in the land? It is entirely possible that such a time will come. It happened in the case of the wild



Deadly game in suburban back-yard: a cat carrying a baby cottontail is stalked by another cat. The toll of small game taken by well-kept cats like these is probably insignificant but cats abandoned in the woods to find their own living are serious and efficient predators.

or woods pigeon that abounded in countless millions throughout the country some years ago. Because of man's wanton slaughter they are now extinct. The American wild turkey, the greatest of all game birds, is fast following the woods pigeon.

"The natural question that comes to the minds of all good sportsmen is "What, if anything, can be done to save our furred and feathered friends."

"First of all our people, and especially the younger generation, must be taught to love and appreciate and have a desire to protect rather than destroy the birds and animals that remain.

"Second, the natural habitat and food, so far as possible, must be made accessible to our game. In years past all this was furnished by nature, but man in his great strides of progress has destroyed many of the God-given wildlife sanctuaries.

Third, we should make use of the liberal aid and information, which is free for the asking, from our Wildlife Resources Commission in Raleigh.

"This commission is doing a great work, but it needs the aid and cooperation of our sportsmen, most especially land owners.

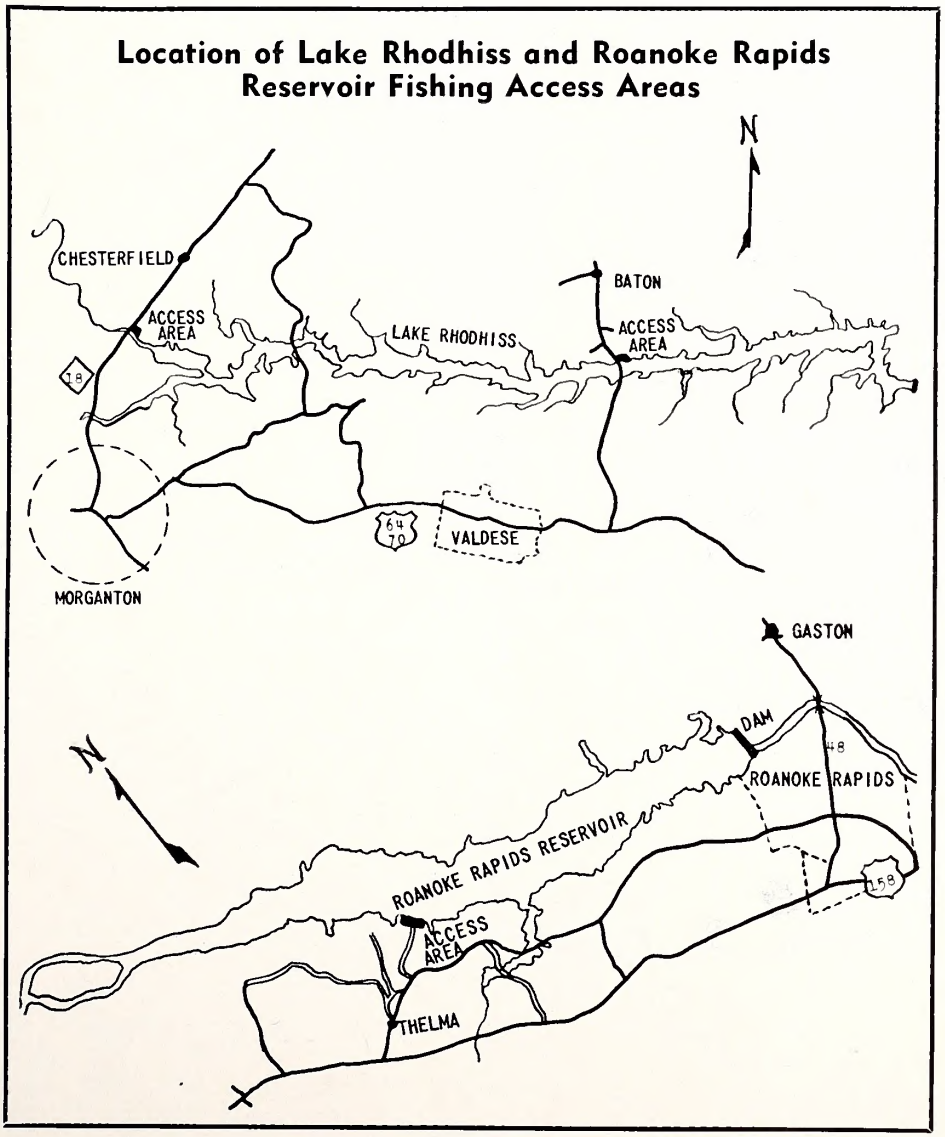
"Fourth, each county should have an active Wildlife Club composed of sportsmen and wildlife lovers who will work closely with the state organization in setting open dates and bag limits and other matters.

"This writer has no other motive than to do his bit to save for future generations one of our great heritages. I have followed the chase both day and night and the memories thereof are happy ones indeed, but I shall devote the remainder of my days trying to save what once I sought to destroy."

Editor's Note: "Mr. Hopkins has expressed a desire to see the Wildlife Club reorganized in Reidsville and Rockingham County. He requests that any person interested in preserving the birds and animals in this area or belonging to a wildlife organization please get in touch with him by calling DI-9-4308 or DI-9-6475."

"Dear Sir:

"Just a note to call to your attention how Carolina Power and Light is doing about the water level in Lake Tillery. They have pulled the water level up and down so that I am sure the fish have all been killed that were even trying to spawn in the shallow water. I have been living on this lake a long while and I am convinced that this is being done spitefully due to an argument about collecting money for what they call privilege of using



the water-rights. The other lakes are held at normal, and I feel sure that this one could be kept full just as easy as two or three feet below normal. Appreciate any action you could take. Thanks."

Norwood, N. C.

Wildlife rarely prints unsigned correspondence, but in this case we must rise to the defense of the Carolina Power and Light Company. For many years the company has been extremely cooperative in making every effort to keep water levels on all of its reservoirs as constant as possible during the spawning season. Heavy rains this spring have made water-level control impossible. When water rises above the spill level, only the Almighty can control water levels.

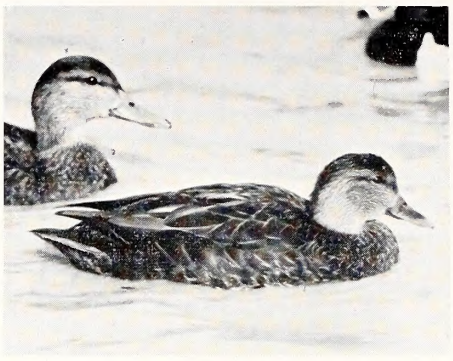
"Dear Sirs:

"I have twenty-six Canada geese and I would like to have all the literature that you have available on the raising and care of Canada geese.

"Thank you.

Very truly yours,
Thomas Layton, Raleigh, N. C."

Sorry, we don't have such literature. You might try the U. S. Fish and Wildlife Service, Washington, D. C., or maybe some of our readers can help. In a phone conversation Mr. Layton said that he is having trouble with hatching and caring for the goslings. Maybe Bob Halstead would have a suggestion or two. Layton's address is Box 2042, Raleigh.



BLACK DUCK TRAPPED EIGHTEEN TIMES

A bird of distinction—and discretion—is a black duck drake that has been captured 18 times in the waterfowl banding traps of the Michigan Department of Conservation during the past nine years, the Wildlife Management Institute reports.

An adult when first trapped and leg-banded in 1949, the duck has eluded hunters for at least the past 10 years. Its latest appearance in the trap was on January 31 of this year. Its original aluminum leg band has been worn out and replaced. The banding studies are part of a national effort to uncover facts about the migration habits of waterfowl.

"Dear Sir:

"Would like to express my appreciation of WILDLIFE! Can't say I'm much of a sportsman although I'd like to be. You see, I'm a housewife with three preschool children and I don't have much time for such.

"I have a question I'd like to have answered. Does one have to get a license to fish with a pole? I don't consider it worthwhile to get a license to fish once and not more than twice a yeare. Also is there any rule on the type of bait used. I've been told so many things I simply want the "straight" of things.

"Here's happy "catching" for those who aren't tied down and you can just catch enough for me too.

Yours very truly,
Mrs. N. R. C.
Lexington, N. C.

Persons fishing in their county of residence with natural bait are not required to have a license. One-day resident fishing licenses are available for 60 cents.

Dear Mr. Editor:

Poor Bunny II is gone. I thought you would wish to learn of the sad news as I knew you would have loved him. His mate, Bunny I, who was expecting, preceded him to game heaven by thirty days. Poor thing! She couldn't run as fast as Bunny II. Both died through the same deplorable circumstances—the cause that goes unnoticed while we, the lovers of wildlife, rave and rant about protection and do nothing about blocking one of the largest conservation leaks that exists today.

PROTECTOR OF THE MONTH

Admiral G. Howell

Mr. Admiral G. Howell, Wildlife Protector for Wayne County, was born on June 5, 1924. He attended Belfast and Pikeville schools, as well as North Carolina State College, prior to enlistment in the U. S. Navy in 1943. Mr. Howell was appointed Wildlife Protector on January 1, 1949, and has attended three Wildlife Protectors' Training Schools at the Institute of Government in Chapel Hill, North Carolina.

Mr. Howell is married to the former Elizabeth Crawford of Pikeville, and they have one son. He is a member of the Salem Methodist Church, a Mason, a member of the American Legion, and a member of the Belfast Grange.

Enforcement Record For May

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of May, 1958.

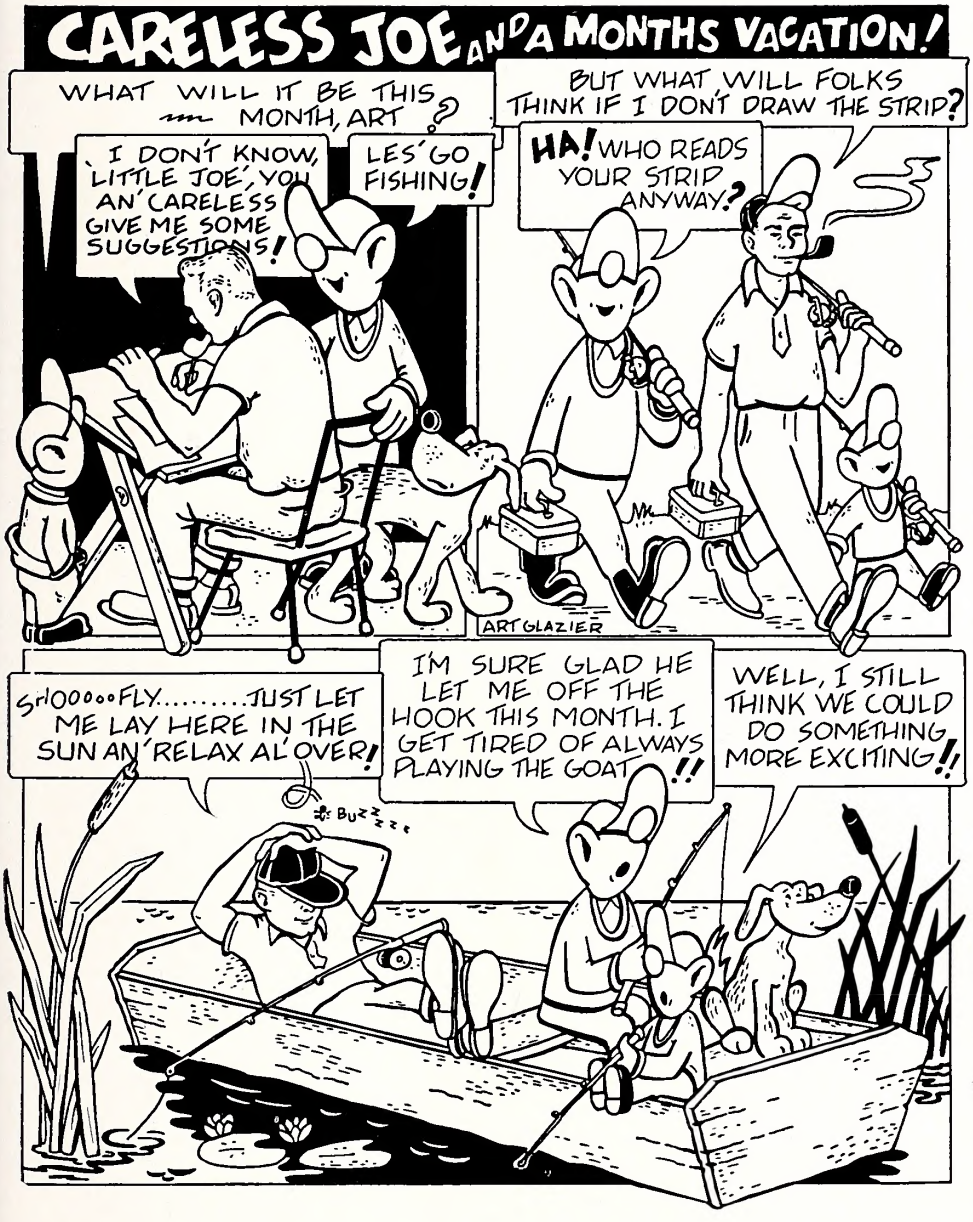
Persons checked	47,352
Total prosecutions	770
Total convictions	750
Total cases not guilty	11
Total cases nol prossed	9
Total fines collected	$7,046.20
Total costs collected	$5,431.50

All fines and arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW

QUESTION: Do the General Statutes provide for a grace period after the expiration date of hunting and fishing licenses?

ANSWER: According to G. S. 113-97 and G. S. 113-148, no grace period is provided for after the expiration dates of hunting and fishing licenses.



Bunny I and Bunny II have long been familiar and lovely sights as they played about our garden, munching early clover. True, they ate a pansy or cabbage plant now and then, but not many. As a matter of fact, we planted a few extra for them.

But the great enemy of all wild game animals, the loose roving dogs discovered our friends. From then on, day and night, two beagle hounds chased them, not only in our yard, but all over a ten square mile area in the suburbs of this city. In this case, a neighbor kept two beagles. That is, he didn't keep them, he just owned them. He never saw them for they ran rabbits day and night, out of season and in. The poor rabbits would take cover, when they could, in culverts or drain pipes. The drains in our yard were dug up thrice by these roving hounds.

Finally, not only Bunny I and Bunny II are both gone (we found the hair where they were killed) together with their prospective children, all of whom would have afforded sport for the hunter next season, but every other rabbit for miles around has gone to the same end. No more will we be awakened in the night by running hounds and the death squeal of my rabbits. In the meantime, the owner of these loose dogs can now call them in for a bit of food. No doubt he feels proud of them. Still, your protectionists have had terested in boat safety. As a fisherman on no more guilty game violator than the owner of the two beagles, left to roam day and night, to destroy all rabbits in this area.

In 1954, we had two pairs of quail that nested in our yard. Quail were running around most all the time in the Spring. We planted food for them, but, alas, a couple of our neighbors brought in bird dogs and turned them loose to roam. In 1955 a pair of quail showed up but not to nest. Since then, I have not seen a quail near this area. The rambling dogs did their dirty work, and the owners are just as guilty of destroying game as they would be if they shot quail in May.

Cats, if anything, are the worse offenders of all animals where it comes to destroying birds. Snooping around at night, they prey on the song birds everywhere. In our wooded backyard, we try to encourage all song birds, particularly mocking birds, cardinals, the brown thrush, and others, feeding on grain and nesting in shrubbery. Even doves have visited our feeding stations and bird baths this year.

Bird sanctuaries are certainly a great thing, but what is a sanctuary to a prowling cat? Out they come in the evening, and move sneakingly down the bushy hedge in true scouting order to prey on the roosting birds. You would indict an individual who knowingly shot a brown thrush. Then, why not do something about the prowling cats? There should be a closed season on them twelve months in the year.

Mr. Editor, you and your organization are doing a grand job. But let us go further in the right direction. Let us promote legislation requiring that those who have dogs and cats keep them on leash or in the house.

Sincerely,
George W. Gillette
Wilmington, N. C.

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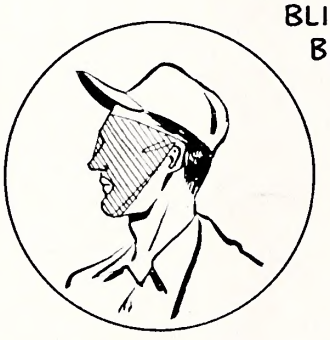
REMEMBER THE CROW CAN SEE BETTER THAN YOU CAN – HE CAN HEAR BETTER, AND IN HIS OWN ENVIRONMENT HE IS SMARTER THAN YOU ARE!

USE A GOOD CROW CALL OR PRACTICE VOICE CALLING. ONCE PERFECTED YOUR CALLS CAN BE USED THE YEAR ROUND.

Be Sure You Have a Valid Hunting License

MANY CROW HUNTERS LIKE A STUFFED OWL FOR A DECOY. PLENTY OF ACTION, THEY SAY.



A FACE MASK OF GREEN NETTING HELPS HIDE THE MOST EASILY SEEN PART OF THE HUNTER – HIS FACE. LEAVE HOLE FOR MOUTH.

ALWAYS PLACE YOUR DECOYS IN TWO GROUPS – ONE ON EACH SIDE OF THE BLIND AND 10 TO 15 YARDS BEHIND IT. MOUNT THEM AS HIGH AS POSSIBLE FOR BETTER VISIBILITY.

AL BARRETT

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Wildlife

AUGUST-1958

TEN CENTS

in north carolina

Photo by Jack Dermid

Sand Pit For A Nest

This downy youngster, flattened in the bottom of his nest beside a shell fragment, is a royal tern. He is one of the thousands of royal terns which hatched this summer on the sandy islands of Pamlico Sound. He is perfectly at home in a little pit of sand, a strange cradle by our standards, a cradle devoid of cover or privacy. Surrounding him are thousands of other tern nests. But the requirements of the species have been fulfilled and Mother Nature is rampant in her productivity. The same holds true with other species—quail or rabbits or deer. Give them a suitable place to live and they will take care of their own multiplication in their own way. To see what it is like to land upon a nesting island, turn to page 12.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

JAMES A. CONNELLY, *Chm.* ..... Morganton
THURMAN BRIGGS, *V. Chm.* ..... Lexington
ROBERT M. CARR, *Sec'y* ..... Wallace
G. E. BEAL ..... Red Oak
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JACK DERMID ..... Managing Editor
JIM LEE ..... Associate Editor
ANNE TAYLOR ..... Circulation

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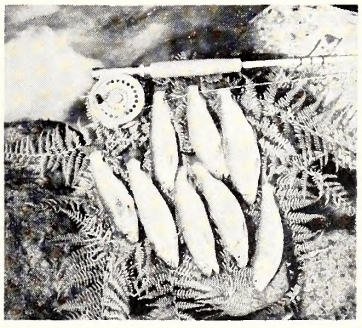
COVER



The hot, humid days of August are with us again, and a relentless sun has lowered the tempo of outdoor activities. But why fret? The trout season extends until the end of the month, and where is there a place more delightful than a sparkling trout stream? The refreshing shade beneath towering hemlocks and the rise of a trout to your fly are tonics sure to counteract any ill effects of Dog Days. The fat gamesters on the cover—caught in a tributary of the South Toe River—are brook trout. Or call them native trout as mountain folks do. They are the original trout of our mountains and are found in the headwater streams at higher elevations, the coolest place of all in August. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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HOLLY SHELTER

a productive refuge is being carved out of the wilderness

By Edward J. Larimer
Eastern Refuge Supervisor
Photos by Jack Dermid

Sprawling over 48,470 acres of coastal swamps, bays, and sandy ridges in eastern Pender County lies the oldest of the State-owned deer management units. Acquired as a wildlife area in 1929, the first organized hunt was held here in January, 1930. Meager existing records state that 114 sportsmen hunted with success over less than half of the original 35,000 acres. The number of deer killed is not recorded.

Whatever success these early nimrods enjoyed must have been richly deserved. Until the advent of the public works program spawned by the 1932 depression, Holly Shelter was largely a forbidding tangle of brush, catbriers, and pond pines. Roughly 60 square miles of bay were accessible only by faint twisting deer trails and a single treacherous foot path. Clyde P. Patton, presently Executive Director of the Wildlife Commission but then an enthusiatic young biologist, recalls plunging into this wilderness shortly after dawn and emerging on the opposite side, briar scratched and somewhat less enthusiatic, well after sunset.

An extensive C.C.C. program wrought great changes in the years preceding World War II. About 22 miles of roads were completed. Necessary buildings were constructed, including a ranger station, lodge, patrol cabins, storage sheds, and fire towers. A Refuge Manager was stationed on the area, and Holly Shelter became a going concern.

This early development, in coordination with sweeping wildfires, temporarily opened up the blinding brush and resulted in excellent hunting. In 1941, 600 hunters harvested 44 bucks with forked or larger horns during a six-day hunting season. The following year, 51 bucks with spiked or better racks were taken in an eight-day season. Applications for these hunts considerably exceeded the supply.

December 7, 1941, and the flames of torpedoed tankers off near-by Cape Fear, ended this early phase of development. Ambitious plans for an adequate road system were folded away. The Army activated near-by Camp Davis and took over 23,000

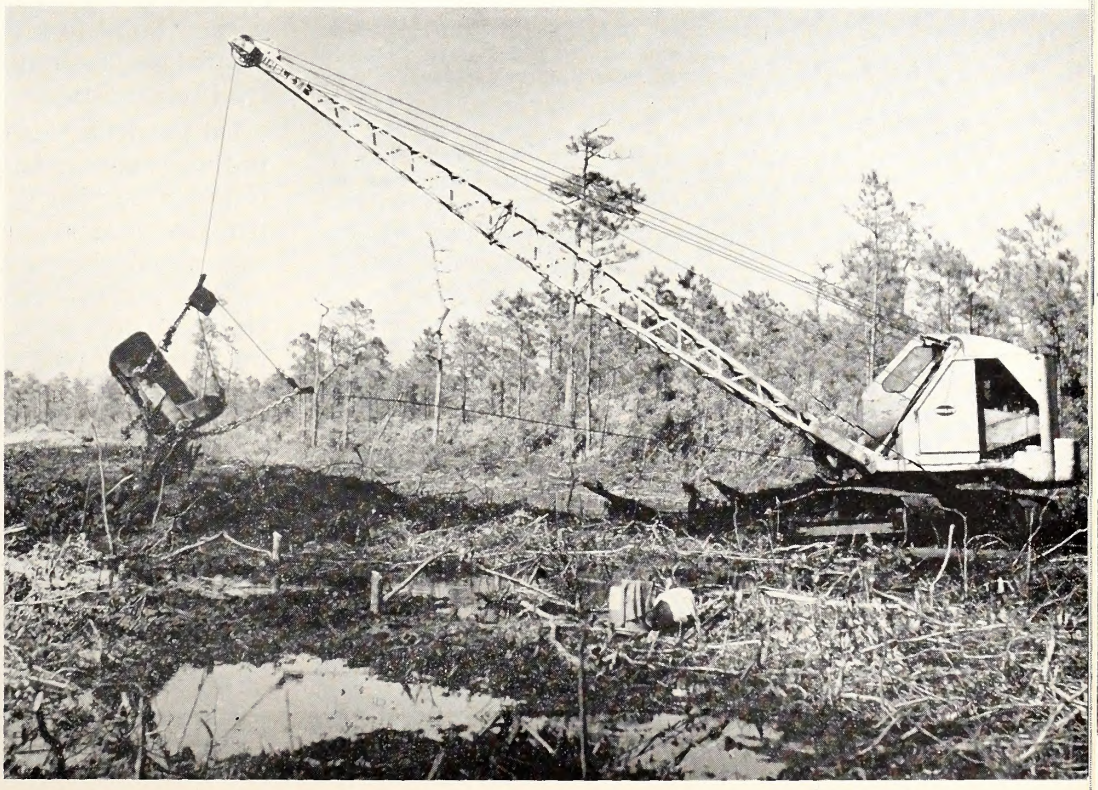
acres of Holly Shelter as an artillery firing range. Increasing numbers of hunters stalked their game in Europe and the islands of the Pacific. Ammunition was urgently needed elsewhere, and the area was closed to hunting in 1945-46.

The years following the war saw a change in the role played by Holly Shelter. The area provided the source of basic information on population trends, food habits, vegetative studies, nutritional surveys, trapping procedures, and other activities. Valuable facts applicable to all eastern Carolina deer herds were gathered. Purchases of additional land brought the refuge to its present size. Hunting and refuge development were incidental and sportsmen harvested a steadily decreasing number of deer. As the result, the refuge was closed to hunting following the 1952 season in order to allow the supposedly depleted deer herd to build up. Actually, there is considerable doubt that the herd had drastically decreased in size. A period marked by less frequent wildfires possibly resulted in further deficiencies in the low quality native browse, but probably the thickening brush simply hid the deer more effectively.

In 1953, the project was reorganized. Deer management and refuge development were to be stressed. Findings from the preceding period of study and research were to be applied on a practical basis, and Holly Shelter was to serve as the test tube for any future work in the coastal plain. This phase started slowly. Acquisition of heavy equipment to replace the unlimited manpower of C.C.C. days and accumulation of operational know-how were necessary. A start was made toward beating back the brush that had all but enveloped the earlier roads. Small numbers of Wisconsin deer were released, a practice which proved to be of questionable value in this area. Holding pens were constructed for the annual crop of confiscated fawns. Here these wilderness babies are nutured to near-maturity and released on the refuge.

As the momentum increased, other worth-while

Pond pines are falling before the onslaught of bulldozers at Holly Shelter to open up the dense bay vegetation for better access. Canal-skirted, dragline-constructed roads are essential for a coordinated wildlife and timber production program as well as for hunter access.



The land is mucky and sometimes vast areas are covered with water. Roads have to be built up by draglines to make them serviceable. Substantial progress has been made in road construction during the past two years. To keep expenses at a minimum, the Commission operates its own heavy equipment.

Except during the hunting season, Holly Shelter is a lonely land of crooked pines, sandy roads, and water-filled ditches. Cleared strip at left of road is planted to ladino clover for deer.

Fawns, which have been confiscated by protectors in eastern North Carolina, are raised at Holly Shelter in spacious enclosure. When able to care for themselves, they are released in the refuge.

projects were planned and initiated. The pasture development needed to supplement the low quality native deer browse was begun. To date, this steadily expanding planting program has resulted in clearing, seeding, and maintaining some 80 acres of ladino clover, rye, annual grain mixtures, and experimental seedings. A goal of 250 planted acres, approximately 0.5 per cent of the total area, has been set. A new road building program was inaugurated in 1956. Some 12 miles of additional roads have been built or are presently under construction. Another 26 miles of roads needed for an adequate access system are in the pre-planning stage. Nearly 40 miles of shooting lanes and trails have been completed, and many additional lanes are contemplated.

The best multiple use concept of refuge development is being sought. Construction of a drainage system basic to profitable timber management, containment of wildfire, and much needed controlled burning, is being studied. Dove hunting was opened to the public in 1957. Sportsmen can anticipate continued successful shooting. Development of upland sections of the refuge for quail and rabbit hunting is in the discussion stage.

What has the present program accomplished? That the fledging pasture program has improved range conditions has been reflected in terms of bigger deer with larger antlers. The 1956 comparison of deer killed on management areas throughout the State revealed that the traditionally small Holly Shelter bucks ranked an astonishing second by the triple standard of weight-foot length-antler beam. Antler beam was the greatest in the State. Road sight counts indicate a continuing, if unspectacular, growth in the size of the deer herd, and observations point to satisfactory fawn reproduction. An auspicious beginning has been made on the needed road construction.

On the debit side of the ledger, development costs in the eastern swamplands are high. The return, in terms of number of deer harvested, has been comparatively small. Prescribed burning techniques successfully practiced by leading forestry agencies on the uplands cannot, as yet, be applied to the Holly Shelter bays without the risk of disastrous uncontrolled wildfire. The result, in conjunction with effective protection against wildfire has been an increasingly impenetrable mat of brush growing beyond the stages best suited to deer needs. Continuing land claims prevent development on some sections of the refuge. The unwieldy and inflexible system of hunting employed in 1956 and 1957 contributed to underharvesting the deer herd.

What about opportunities for 1958 Tarheel hunters at Holly Shelter? For those who want to match wits with a wary trophy buck under the toughest possible conditions, archery hunts are scheduled for October 10-11, and still hunts with shotguns or

rifle for October 15-16. In both cases, the preceding Sunday can be used for reconnaissance by interested hunters. Advance applications for these still hunts will not be required. Daily hunting permits ($3.50) will be sold at the checking station—located about seven miles south of Route 53 between the towns of Burgaw and Maple Hill.

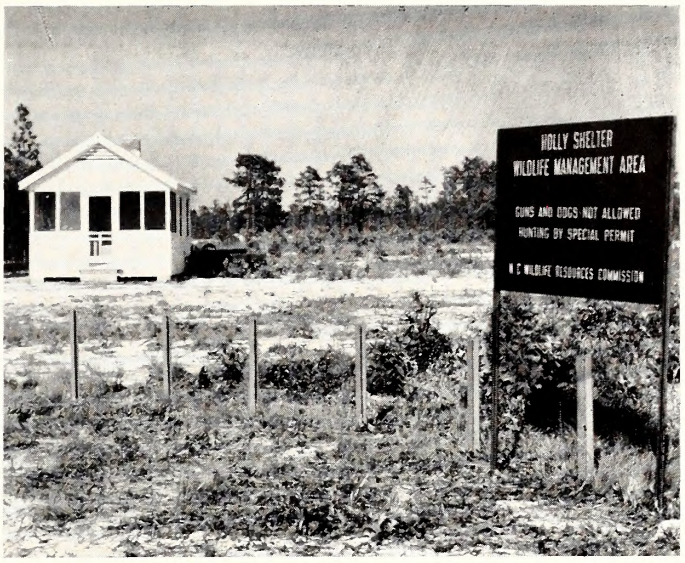
Rather settle back on a stand and listen to the nerve-tingling uproar of a pack of deerhounds driving their quarry to you? The 1958 Holly Shelter dog hunts have been reorganized in an effort to increase the harvest needed by a growing deer herd. A maximum of five small mobile parties numbering 25-30 sportsmen will be able to hunt in individual compartments on November 3, 10, 17, 24, and December 1, 8. Each party will be guided and controlled by one of five veteran huntsmen selected by the Wildlife Resources Commission. Guides will furnish 25 or more bonafide deerhounds for each party. Advance application for these limited quota hunts will be necessary. Reservations may be made by writing any of the approved guides, specifying the hunt date or dates desired, and arranging to pay $5.00 for guide services. Applications should be received at least one week prior to the day of the requested hunt. Party compartments and individual hunter stands will be determined by drawings to be held on the morning of the hunt.

The names and addresses of approved guides are listed below:

1. Amos Lanier—Chinquapin, N. C.
2. Wilbur Lanier—Chinquapin, N. C.
3. Gordon Merritt—Mt. Olive, Route 2, N. C.
4. Graham Padgett—Watha, N. C.
5. Odell Raynor—Wallace, Route 2, N. C.

In addition, five days of dove hunting are scheduled for 1958. Dates cannot be set until the federal regulations on migratory birds are published.

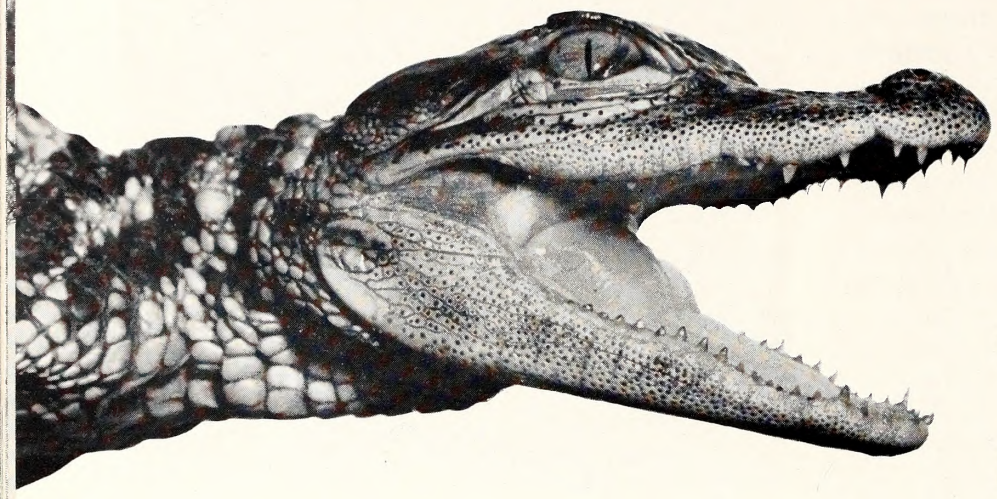
Good hunting! See you at Holly Shelter!



Checking station will be scene of activity during deer hunts: Archery, October 10-11; Still, October 15-16; and Dog, November 3, 10, 17, 24 and December 1 and 8. See text for details.

Refuge Manager Ashley Manning, Jr., checks a field of clover for deer usage. Some 80 acres of ladino clover, rye, annual grain mixtures, and experimental seedings are maintained to supplement the natural foods of deer and other game species.

Wildlife plantings and natural foods are attractive to doves, and hunts are scheduled for September 6, 8, 10, 13, and 17.



Famous in folklore and legend, the American alligator is one of our most unique animals. Is he about to disappear?

King of the Swamps

By Darrell E. Louder

THE American alligator, *Alligator mississipiensis,* is undoubtedly the king of the swamp. This hangover from a by-gone age is found in the wildest part of southeastern North Carolina near the coast. The American alligator belongs to the order of reptitles known as the Crocodilia, which contains some 25 species, including only two species of alligators. We in North Carolina should consider ourselves fortunate to have such an animal in our midst.

The 'gator prefers to loll about in the inaccessible swamps, with only its eyes and nose showing above the water's surface.

Photo by Darrell Louder

The alligator is a thick-bodied animal covered with large tough bony scales. It uses its powerful tail to propel it through the water at a rate faster than a man can paddle a canoe. The 'gator usually prefers to loll about in the inaccessible swamps, where it can be seen with only its eyes and nose tip protruding above the surface of the water. During warm days it lies on exposed banks, basking in the sun.

The food of the alligator includes muskrats, snakes, turtles, frogs, and an occasional stray pig. If the victim is too large to swallow, the alligator takes the prey in its mouth and shakes or revolves with it in the water until it is torn to bits. The alligator has been known to drag its prey under water in order to drown it, and then cache it away in its den, leaving it to decay and be eaten at leisure.

On land the alligator can lift its bulky body above the ground and run rapidly, taking long cross-country hikes in the dry seasons in search of water. As winter approaches, it takes refuge in its den which is dug in a mud bank with an underwater entrance. Here it hibernates until spring returns.

The alligator will attack man only when cornered, and therefore one should approach an alligator without giving the impression that it is being cornered. Unfortunately the American alligator is killed by unmerciful hunters for the "thrill" of it.

Unless a law is passed to protect the American alligator, he will fast disappear from the scene. Today an eight foot alligator in North Carolina is uncommon, while a relatively few years ago a sixteen foot specimen was not unusual. Some states, such as Florida, already protect the alligator.

The alligator reaches adulthood at nine years. During the breeding season, bellowing of the males can be heard for miles. At this time the males engage in fights, often losing a limb or a portion of the tail. They inflate themselves, hissing as they inhale, and lash about furiously with their tails as they churn the water to a froth. A black fluid is given off from the males' chins during the mating season, and this fluid attracts the females. In early May the female finds a sheltered spot on a bank and builds a mound of mud and aquatic vegetation in which to deposit her thirty or more eggs. The mound may be three feet high and eight feet in diameter at the base. The nest is kept moist by the female, who returns to the nest to wet it periodically. The young hatch in about sixty-five days, and just before they break out of the eggs the young alligators begin to squeak, at which time the mother opens the nest and releases them. The young are only about eight inches long at birth, but grow at the rate of twelve inches per year under favorable conditions for the first few years, after which the growth is considerably slower. The oldest known alligator was 56 years old. Some however, may live for a much longer period of time.

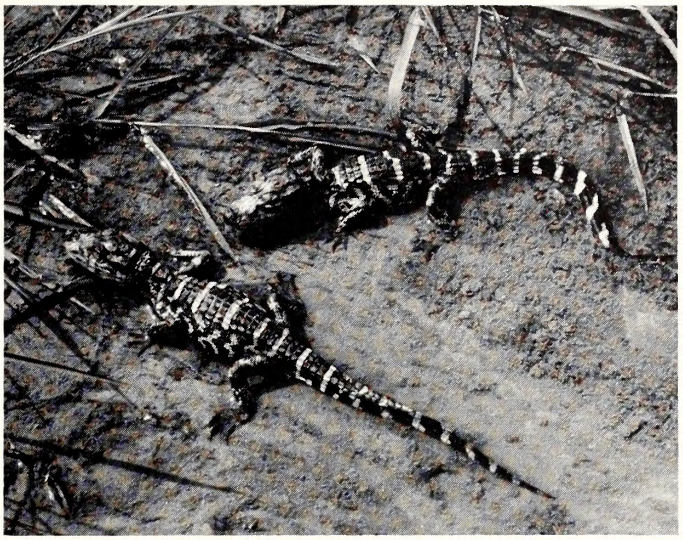


Photo by Jack Dermid

Baby alligators are only about eight inches at birth, but during the first few years may grow a foot a year. The yellow stripes on the young above are characteristic of the American 'gator.

Contrary to popular belief, alligator farms do not breed or rear alligators, but merely collect them from some remote spot where they can be found in large numbers.

Sideshows exhibiting an alligator born with only one leg or a half tail are strictly fakes, since undoubtedly the alligator lost this part of his body in a fight with another bull alligator.

Let's remember that the king of the swamp isn't as bad as he is thought to be, and let's preserve him for our decendents to enjoy, (though we may not).

Photo by Darrell Louder

Exposed banks and logs in streams are favorite sunning places for alligators. When danger approaches they often slide noiselessly into the water to slip into hiding places in the bank.

Photo by Jim Lee

EDITORIAL

Ownership of Game

THE ownership of game is in the people of the State, and the Legislature may withhold or grant to individuals the right to hunt and kill game, or qualify or restrict it as in its opinion will best subserve the public welfare. No one has property in animals and fowls, denominated 'game' until they are reduced to possession. . . .

"At common law, title to game was in the King (with us now in the sovereign people), and no one could hunt game even on his own land without a franchise from the sovereign. Wild game within a State belongs to its people in their collective sovereign capacity. It is not the subject of private ownership except when some express statute confers it . . . Maine, in his 'Village Communities,' 142, says this ownership of game by the sovereign has been in the common law from the earliest time."

State V. Gallop, 126 N. C. 979, 982, 983.

The above is quoted from a well-known court case in which the decision rested on whether or not an individual could own wild game that had not been reduced (legally) to possession.

The concept of the ownership of game and fish has been one of the most often misunderstood points of law pertaining to wildlife conservation. It is easy to understand why a man who owns a farm, and who makes at least some provision for the production of game, would consider that game his own personal property.

The underlying reason for sovereign ownership of game is its mobility and disregard for property lines. A rabbit, a covey of quail, a gang of turkeys or a family of squirrels may reside within the boundary lines of a single tract of land. At the same time, however, they are capable of crossing those boundaries onto other property. They do this of their own volitation, and no practical means has been devised to stop them. The same is true of fish.

Any game fish or game animal, however, becomes the property of the person who reduces it to possession through means prescribed by law; the rest by virtue of mobility or the ability to move from one property to another, remains in public ownership.

There are, of course, exceptions. Migratory waterfowl, to use an extreme example of mobility, may be possessed in live condition on a pond or within an enclosure, as long as the owner obtained them, or their ancestors were obtained in a manner prescribed by law.

What about the ownership of fish in a private pond? If the pond is classified as "private," i.e., if it arises within the boundaries of a singly or jointly owned property and into which or from which fish cannot travel, the fish within it have been reduced to possession just as if they were contained in a goldfish bowl.

Where, then, are the property rights of a landowner with regard to game? First, under the laws of most states including North Carolina, a property owner may take game or fish on his own property without license requirement. He must, however, abide by the rules applying to the manner of taking game or fish, and the bag or creel limits provided by law. In the case of fish in a private pond, no size or creel limits apply, and any device except poison, explosives or electricity may be employed to take them.

A fundamental and more important right has to do with the ownership of land. The landowner has the sole right of determining who shall use his property for either hunting or fishing. He can close it entirely to the use of others. Thus, even though he may not have legal ownership to the game on his property or the fish in the stream running through his land, he can be the only person who may take them—legally—or grant the privilege to others.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Combination Hunting-Fishing Licenses Due

Persons fishing on combination hunting-fishing licenses were reminded that the 1957-58 licenses had expired and new 1958-1959 licenses were needed. Varmint hunters who go out for crows, woodchucks and other non-game or unprotected animals need new hunting licenses as of August 1.

Five-day Increase in Dove Season Expected

Probably as a result of the highly successful nesting season, dove shooters in the Atlantic Coast flyway may expect some increase in dove shooting this year. Although not officially announced at press time, it was expected that the Fish and Wildlife Service would allow 65 half-days of hunting in North Carolina, a five-day increase from 1957. The Wildlife Resources Commission requested the dates Sept. 6 through Oct. 4, and the second half of the split season Dec. 11 to Jan. 15. Bag and possession limits will remain the same.

Catawba County Club Dedicates New Lodge

A fish fry featured the opening of the Catawba County Wildlife Club's new lodge on Lake Hickory August 1, when Wildlife Commission Chairman Jim Connelly was guest speaker. Completion of the lodge marks the successful completion of several years of work on the part of the wildlife club.

Marsh Hen Shooting To Mark First Open Season

The 1958 season on rails, sora and gallinules will be marked by an abundance of birds and a liberal bag limt, with the opening date set for September 10. As in previous years the supply of birds along the tidal marshes is expected to again exceed the demand of hunters. Best shooting will be during the moon tides of September, October and November when water covers the marshes sufficiently to permit the use of skiffs to flush birds from the heavy cover.

Currituck-Back Bay Study Well Under Way

A three-man team of aquatic biologists representing North Carolina, Virginia and the U. S. Fish and Wildlife Service has completed three months of a study of vegetation, fish and water conditions in the Currituck Sound-Back Bay area. The study, scheduled to last at least three years, is intended to determine factors underlying waterfowl food plant fluctuations, the effect of salinity, and other problems involving waterfowl and fish populations.

An Island of BIRDS

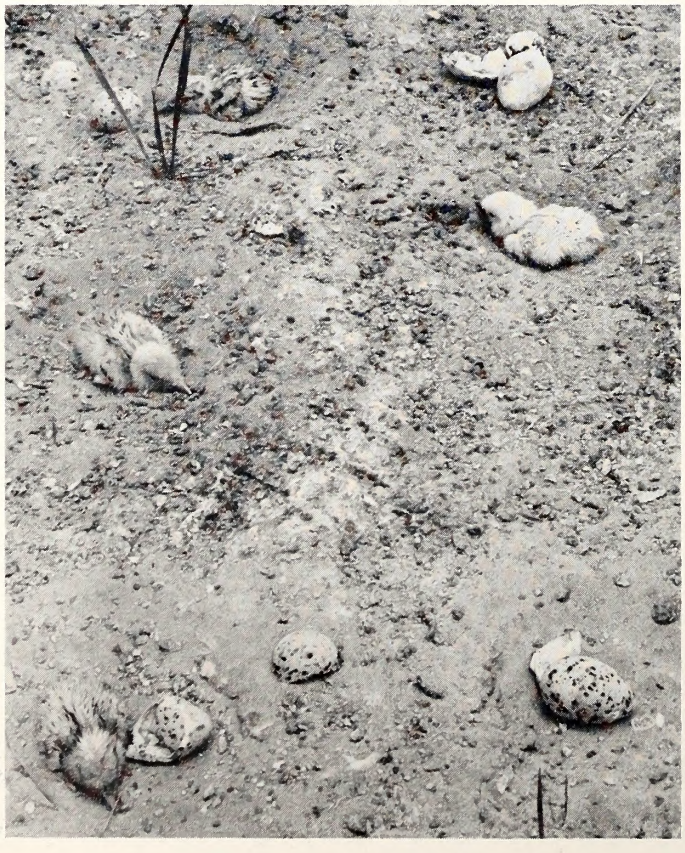
Photo Feature by Jack Dermid

From a distance, we could see a few birds milling over the island, and as our outboard drew closer, we could see a great line of birds on what seemed to be a wave-washed shore. Binoculars revealed they were royal terns, packed like sardines on high ground a few inches above the high tide mark.

It was indeed a nesting colony, and this was dramatically verified when a portion of the terns billowed upward into a swirling, screaming cloud as our boat came within a few yards. Dr. T. L. Quay of North Carolina State College, who is making a wildlife study of the Cape Hatteras National Seashore, was on a scouting trip in Pamlico Sound off Buxton with Wade A. Register, Dare County Wildlife Protector.

The photo, except for sound effects and showers of guano, shows the spectacle encountered ashore. It was early June, and most of the nests contained eggs, although many young were present, some large enough to wander about the island. Quay, the figure dwarfed by birds, calculated the nesting area to be about 50 by 150 feet. An estimate placed one nest in every 1 to 2 square feet of space for a very conservative total of 4,000 nests.

The royal tern is a magnificent water bird, trimly dressed in black and white and boldly accented with a flashing orange bill. As we watched them soar overhead, it was hard to realize that royal terns were largely exterminated in many parts of their range before the sale of wild feathers was outlawed. Here was a living demonstration of the importance of protecting a vanishing species before it is too late, before its numbers drop below the threshold of survival.



The following speech was presented to the Outdoor Writers Association of America at their annual meeting at Key Colony Beach, Florida, on June 4, 1958. Interest in the problem of water pollution control and water conservation has long been high in North Carolina. Mr. Harlan presents a discussion on the national level, and much of what he says can be applied directly to the Tarheel State.

Photo by Jim Lee

Pollution Control...

By James R. Harlan
Conservation Consultant, Water Supply and Water Pollution Control Program
Bureau of State Services, Public Health Service
U. S. Department of Health, Education, and Welfare

IT is a privilege to have an opportunity to participate in this workshop of the Outdoor Writers Association of America. I have been a member of this organization for a long, long time. Although this is only the second annual conference I have been able to attend I have carefully followed your activities through the years.

Before I came to Washington less than a year ago, I was connected with the Iowa Conservation Commission for more than 20 years and much of that time did information and publicity work. In my new position with the Public Health Service, major emphasis is placed on interpreting the Public Health Service's position in water pollution control matters to the conservation groups of this country. Also I am expected to interpret to the Public Health Service program planners the position of the conservation groups on water matters, specifically on pollution control.

It is quite a long cry from the Iowa corn fields to the seat of our Federal government. Quite often I have lunch at the Washington Press Club and

there I see many of the great names of journalism. The by-lines of the specialists in medicine, government, literature, and law—are read by millions of people all over the world. Their words in their specialized fields are accepted as gospel by most of us. Believe me it is quite heavy broth for me to meet these stars of journalism.

The other day I looked across the dining room and saw our own Mike Hudoba and I realized again that we have bright stars in our own field of journalism. Conservation is one of the most difficult and exacting of all journalistic fields and certainly one that is vital to every man, woman, and child on the continent. It is a field that I am personally proud to be identified with.

For many years the conservationists and outdoor writers have been in the front ranks of the battle for pollution control. Often their voice has been almost the only one other than that of the professionals protesting the destruction of our water resources by pollution. They have been ridiculed, and abused; called impractical, and idealistic; and they probably will be in the future. But things are beginning to change. Everyone is beginning to realize that we must all have clean water, not for recreation alone but for every other legitimate use including water supply, propagation of fish, aquatic life and wildlife, for agriculture and industry. We are beginning to realize that we must use and reuse our limited water resources.

Let's step back and take a look at the water picture.

We have as much water as we ever had—and will ever have; no more, no less. But, the use of water is increasing amazingly.

It is the most used raw material in our factories. The steel industry uses 13 billion gallons a day. It takes 365,000 gallons to produce a ton of rayon yarn, one-half million gallons for 1,000 yards of woolen cloth, more than a million gallons for 1,000 barrels of gasoline. In 1955, industry used 45% of the total water used. It will use 65% in 1975.

Our population is expected to increase 50 million by 1975. Municipal water use will increase from 17 to 24 billion gallons per day.

In 1955, we were using 120 billion gallons each day for irrigation; in 20 years, we will be using 170 billion gallons a day.

Water resource experts have advised us that between now and 1975, we will increase our water use by 90%. This will require the flow of several Colorado Rivers and where are we going to get more Colorado Rivers?

The sobering fact is that, although the demand increases, the supply remains the same.

Secretary of the Army Brucker recently stated, "The United States can no longer treat water as an inexhaustible resource and allow it to run a wayward and wasteful course to the sea."

Pollution is a waste of water and we as a Nation *must* tackle this problem in deadly earnest. We must recognize that pollution control is one of the most effective and economical water conservation measures available to us. Pollution can be and often is just as effective in limiting the use of water as if drought had denied us the water in the first place.

In spite of the fact that more public attention and more public money are being devoted to its control, pollution has been steadily increasing.

In 1920, the population equivalent of municipal waste reaching our streams was about 40 million. This means that the organic matter contained in the sewage, treated and untreated, was the equivalent of raw sewage from 40 million persons.

In 1955, in spite of the expenditure of $7 billion for treatment works, pollution had increased to the equivalent of raw sewage from 55 million persons.

This figure does not include industrial wastes and the picture here is even blacker. In 1920, organic industrial waste amounted to a population equivalent of 50 million; now it is more than 110 million. And this does not include inorganic industrial waste, such as mine acids, metal finishing wastes, and chemicals which cannot be measured in the same terms as sewage.

The sad story is that since 1920, the organic pollution load on our water resources has increased by a population equivalent of approximately 70 million.

Speaking to a national conference of State and interstate water pollution control administrators in Washington early this year, Assistant Surgeon General Mark Hollis, of the Public Health Service, said, "The work accomplished in pollution abatement simply has been outdistanced by the speed of progress of the development of new problems . . . at the present levels of remedial action the situation is destined to get worse—*not better.*"

Water pollution is nationwide. However, there are areas where public opinion has crystallized in

Fact or Fiction?

Pollution Control... Fact

favor of clean stream programs and the waters are in much better condition than where leadership is lacking and where the average citizen is not aware of the extent, nor the significance, of local pollution.

Early in March of this year, the Public Health Service held in St. Louis one of a series of conferences on pollution of the Missouri and Mississippi rivers. This conference resulted in a time schedule for construction of abatement works necessary to control pollution of the Mississippi River in this area.

The publicity resulting from the conference was quite shocking to some friends of mine living in St. Louis. Some of the thought provoking points brought out follow: There are 80 separate sewer outlets dumping pollution into the river. Sewers as large as 30 feet in diameter discharge fluids colored red, blue, green, yellow, or brown, depending on the source of their load. Many carry thick scums of grease or blankets of chicken feathers that actually clog the water intake tubes of Coast Guard vessels working on the river. The city flushes as much at 60,000 tons of ground garbage into the river every year and on some days it is as high as 300 tons. Furthermore, 460 tons of sewage solids reach the river each day.

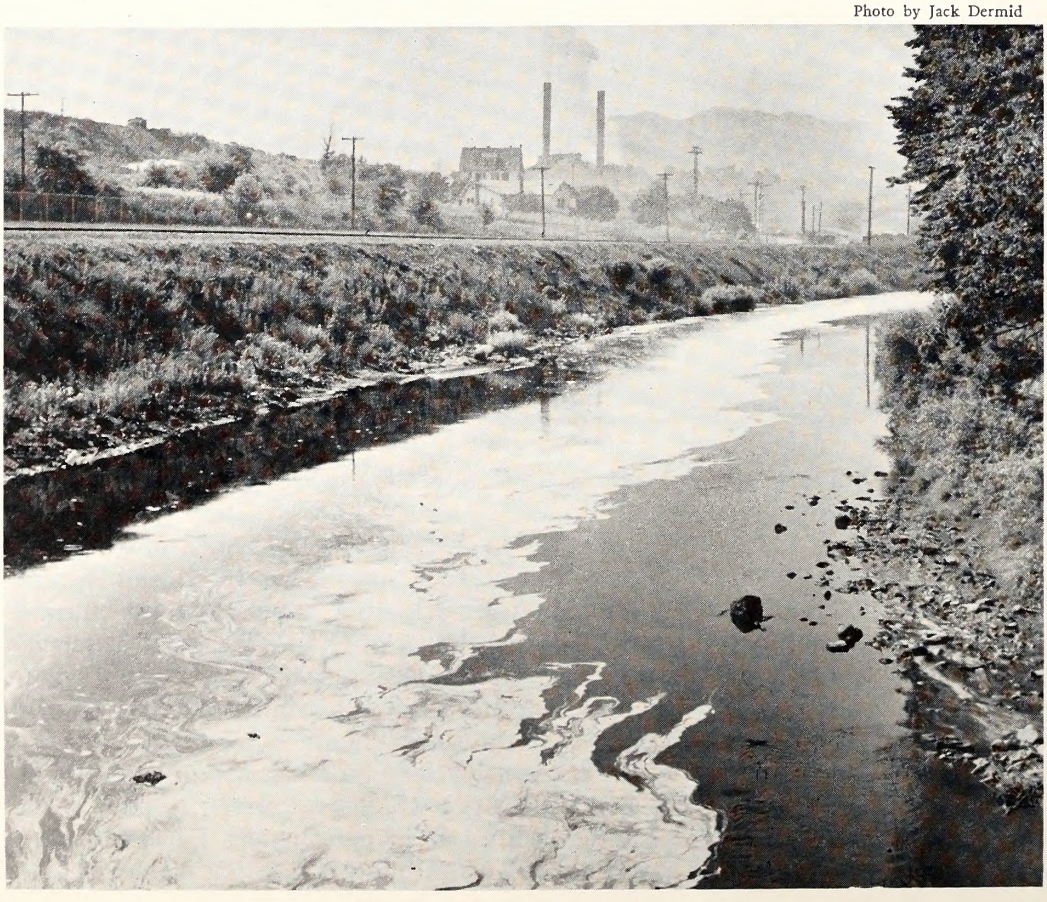
Public Health Service testimony revealed that if a person accidentally swallowed a single mouthful of untreated water from the area, he would become host to 500,000 sewage bacteria.

My friends were surprised to know that many people downstream got their drinking water from this awful mess. Shocked was their reaction to realize that they in turn received a similar concoction from Sioux City, Omaha, Council Bluffs, St. Joseph, Kansas City, Dubuque, Davenport, Rock Island, Moline and Keokuk.

I don't single out St. Louis for special condemnation, for their problem is only one of many that exist, to a greater or lesser degree, from coast to coast. Rather, I do commend them for recognizing their problem and implementing its solution.

February 24 of this year, Mr. Charles H. Callison, Conservation Director of the National Wildlife Federation, in testifying before the House Subcommittee on Inter-governmental Relations said, "Mr. Chairman, the contamination of the public waters of America by dumping untreated sewage

Photo by Jack Dermid



Industrial pollution of our streams has long been a problem in North Carolina. Here chemical wastes from a paper mill cover the surface of a mountain stream with soapy scum, rendering the water unfit for further industrial or municipal use requiring clean water. Fish, deprived of oxygen, can no longer thrive in this river.

Fiction?

and industrial waste into them is nothing more than the literal, physical destruction of natural resources. What happens when a stream is befouled and poisoned by pollution?

"Its waters cannot be used for household purposes except after costly treatment.

"Industries requiring clean water for their processes have to seek plant sites elsewhere . . . .

"The water cannot be safely used for swimming, boating, water skiing, or other forms of aquatic recreation. Parks and playgrounds along the shore line must be posted with warning signs.

"Farmers cannot use the streams to irrigate their fields or water their livestock.

"Fish die in these waters. Waterfowl and other wildlife shun them.

"Real estate values decline along the polluted river, because no one wants to live above the stench of a open sewer.

"All of this, gentlemen, is sheer waste. It is worse than waste, it is needless destruction of natural resources that this Nation can no longer afford."

More and more the economics of pollution is being studied with the result that leaders in government and industry are saying that we cannot afford the shameful pollution of our streams.

Speaking to the conference of State and interstate pollution control administrators in February of this year, Surgeon General Burney stated, "The economic effects of pollution are being felt in more and more places. For example, on several occasions within the past year members of Congress, local officials and Chambers of Commerce have come directly to us for help on pollution problems which were preventing the location of new industries. A few months ago a Mayor faced with growing unemployment in his city tried unsuccessfully, because of pollution, to attract several new industries. His point of view was that the people of his area can no longer afford to tolerate pollution. The Nation's growing population and expanding industry must have good water—and the areas with good water will show the greatest economic growth."

To clean up our waterways is going to cost money—lots of money. We're going to have to think and act in terms of billions instead of millions to whip the problem. Gordon McCallum, Chief of the Water Supply and Water Pollution Control Program of the Public Health Service, speaking last month to the Illinois Society of Professional Engineers said, "In October 1955 the Public Health

Photo by Jim Lee

The pollution problem has broadened to include new types of poisons, such as agricultural insecticides that washed from farmers' fields into creeks, killing these downstream fish.

Service made known the results of a survey of municipal sewage treatment needs. To reduce the pollution load to the population equivalent of 36 million persons, as indicated desirable by the States, a total of 6,700 projects were needed as of January 1, 1955. These projects were estimated at that time to have a construction cost of $1.9 billion and represented the backlog of municipal pollution needs three years ago.

"The backlog fails completely, however, to show total construction needs. It was recognized that, while backlog projects were being built, new needs to care for replacement of existing plants becoming obsolete and for new sewer populations would increase sharply. Accordingly, the Public Health Service survey included estimates of these needs for the ten-year period 1955-65. These estimates indicated that construction needs caused by obsolescence would amount to $1.72 billion and those caused by new sewer populations requiring treatment would be $1.71 billion.

"For the period 1955-65, then, it was shown that construction costs for sewage treatment needs would total $5.33 billion. In order to meet this schedule, expenditures would have to average $533 million a year for the 10-year period. Up to 1955 we had not averaged even half that amount and since then we have averaged only a little more than half."

The 5 and ⅓ billion dollars is the tab for domestic pollution only and does not include the price tag on industrial wastes clean-up. This, too, will be in billion dollar figures, and will present many gigantic problems.

Assistant Surgeon General Hollis, in the speech previously referred to said, "We must remind ourselves that in the past we have dealt for the most part with natural organics with bacterial pollution, and with chemicals of known toxicity and behavior. Today, the problem broadens out to include new

types of contaminants such as synthetic organics (chemical conglomerates) and radioactive waste. And we must view the future problem both in terms of increased quantities of such wastes and yet unknown new waste which will add new dimensions and new headaches."

To this quote, I will add—and new costs.

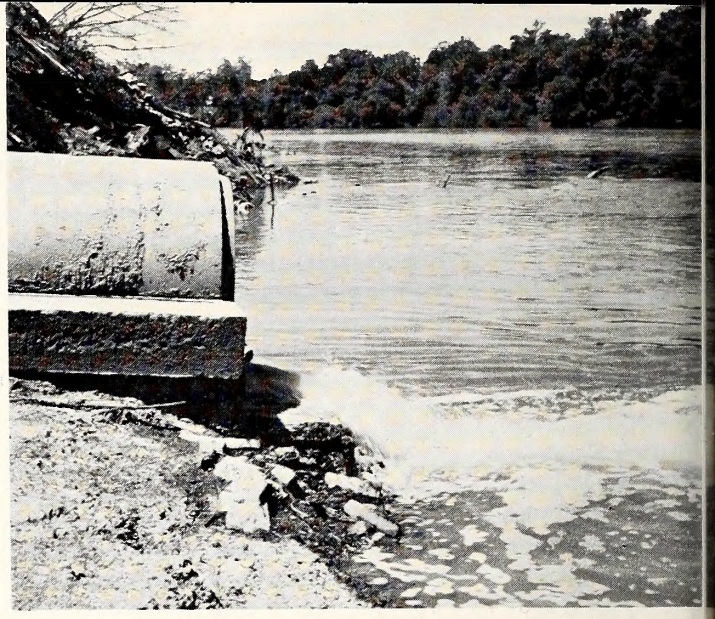
Fortunately, industry is accustomed to thinking and acting in terms of billions. To illustrate, industry in 1959 will spend $9 billion for research alone to create new and improve old products. The January-February *"Chemical News,"* published by the Manufacturing Chemists Association, shouts out under a banner headline "$2.54 Billions Set for New Construction" and goes on to say that physical facilities for the production of chemicals in the United States, growing steadily through the years, continues to expand at a fast clip. Construction of new production facilities costing $1.3 billions was completed in 1957. Construction with a collective price tag of $2.54 billions is planned for completion before 1960.

The paper industry, another big user of water, produced $10.7 billion worth of paper products in 1957.

I am afraid I have presented the dark side of the picture but there is a brighter side.

Beginning about 1900, and continuing until about World War II, the Public Health Service and the State health departments were concerned with water pollution principally as it related to disease. In recent years their responsibilities have undergone a transition from purely health related considerations to water quality for all uses. The Federal Water Pollution Control Acts, Public Law 845, 80th Congress and Public Law 660, 84th Congress, recognized this need.

This law requires the Surgeon General to develop programs to eliminate or reduce pollution. In so doing, the Act says in part " . . . in the development of such comprehensive programs due regard shall be given to the improvements which are necessary to conserve such waters for public water supplies, propagation of fish and aquatic life, and wildlife, recreational purposes and agricultural, industrial and other legimate uses."



This statutory recognition of the needs of all water users is one bright spot in the picture.

A second is the fact that a growing majority of our American industrial leaders have come to recognize that pollution is a rectifiable evil and that correction is the responsibility of the industry creating the problem.

The third hopeful sign is the fact that last year construction of sewage abatement facilities reached $351 million, approaching the $533 million figure needed for 10 years to catch up with the domestic pollution problem.

The fourth and most important sign I see on the horizon, is the fact that the average American is becoming aware of the necessity for pollution control. I believe that when all of us say in concert that we want clean water the necessary steps will be taken to get pollution under control.

I have told you some of the story of water pollution control. I believe sincerely that the members of this Association have an obligation to tell and retell the critical story of pollution. Also, that you have an obligation to know and to tell the whole story, accurately and completely. You can be sure that the folks running the water pollution control programs throughout the country will welcome your inquiries on progress and problems in your community or State. If you have queries on a national basis, write to me. I will see that they are directed to the proper information source.

I would leave you with this thought: Until every American understands the fundamental necessity for clean water, real pollution control will remain fiction; when they do understand, pollution control will become a fact.

Who would want to live beside an open sewer such as this?

NEW DISTRICT 9 COMMISSIONER ANNOUNCED

T. N. Massie

T. N. Massie, Sylva retail furniture store owner, was appointed recently to fill the unexpired term of former Wildlife Commissioner Charles T. Wilson of Biltmore, who resigned. Mr. Massie will serve as Commissioner for District 9 until July 5, 1959, representing 12 mountain counties on the nine-man Wildlife Resources Commission.

Governor Hodges' latest appointee to the Commission has long been an active figure in wildlife circles in North Carolina. He was a member of the Legislative Committee of the North Carolina Wildlife Federation at the time of the creation of the Wildlife Resources Commission, and is a past member of the Federation's Board of Directors. He has also served as president of the Jackson County Wildlife Club and the Sylva Rotary Club.

Commissioner Massie is married to the former Helen Cabe and has a son, Tom, and a daughter, Joy. He has been in the furniture business for the last 27 years, following his education in the Waynesville schools and Mars Hill College.

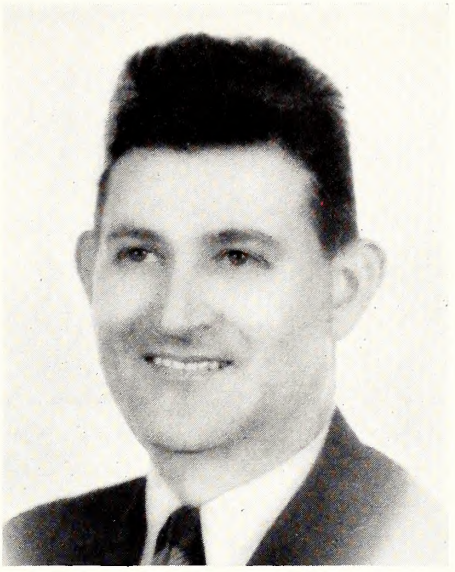
DEWITT T. BRYAN, WILDLIFE PROTECTOR PASSES

DeWitt T. Bryan, Wildlife Protector for Alleghany County since 1946, died of a heart attack at his home near Glade Valley on July 7. He had been active in his duties on the day of his death.

Mr. Bryan, a veteran of World War I, was sheriff, tax collector and treasurer of Alleghany County before becoming a wildlife protector.

He is survived by his wife, Retha Thompson Bryan, two daughters, three grandchildren, two sisters and a brother.

Clyde P. Patton, Executive Director of the Wildlife Commission, said that "The sportsmen of North Carolina owe a debt of sincere gratitude to Mr. Bryan for his many years of service. They will miss him very much."



DeWitt T. Bryan

PROTECTOR OF THE MONTH

Wade Crain

Wildlife Protector Wade Crain of Swain County was born in Erwin, Tennessee on July 21, 1918. He came to North Carolina in 1935, and prior to October, 1950, when he became employed by the North Carolina Wildlife Resources Commission, he was with the Smoky Mountain National Park.

Mr. Crain is married to the former Helen Kirkland of Swain County, and they have four daughters. The Crains are members of the Holly Springs Baptist Church, where Mr. Crain is a Deacon.

ENFORCEMENT RECORD FOR JUNE

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of June, 1958.

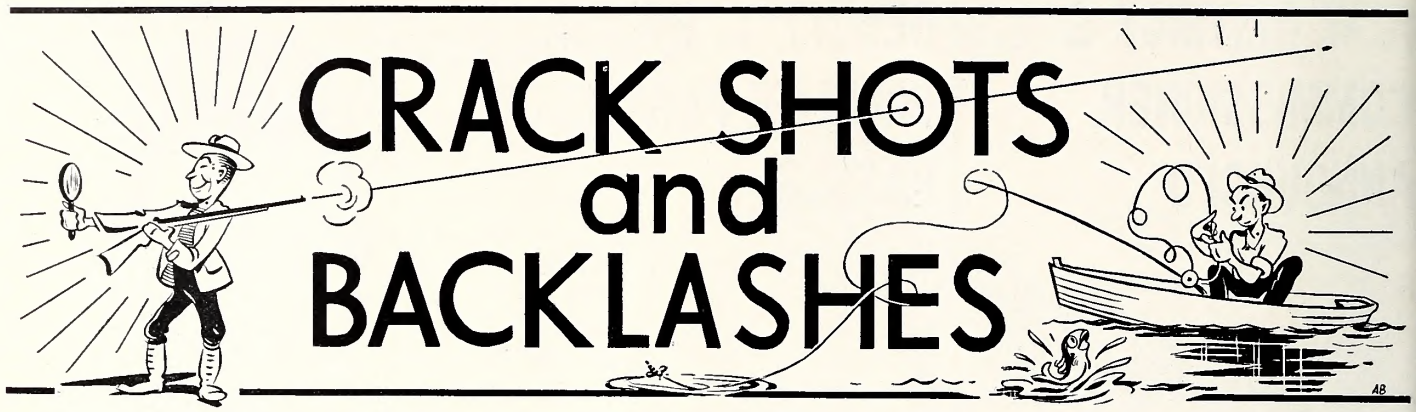
Persons checked	55,480
Total prosecutions	827
Total convictions	818
Total cases not guilty	3
Total cases nol prossed	6
Total fines collected	$3,364.50
Total costs collected	$6,679.51

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is it a violation to hold game birds or animals in captivity?

ANSWER: Game birds and animals may be held in captivity, provided the person holding same is in possession of a valid permit from the Executive Director of the North Carolina Wildlife Resources Commission.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

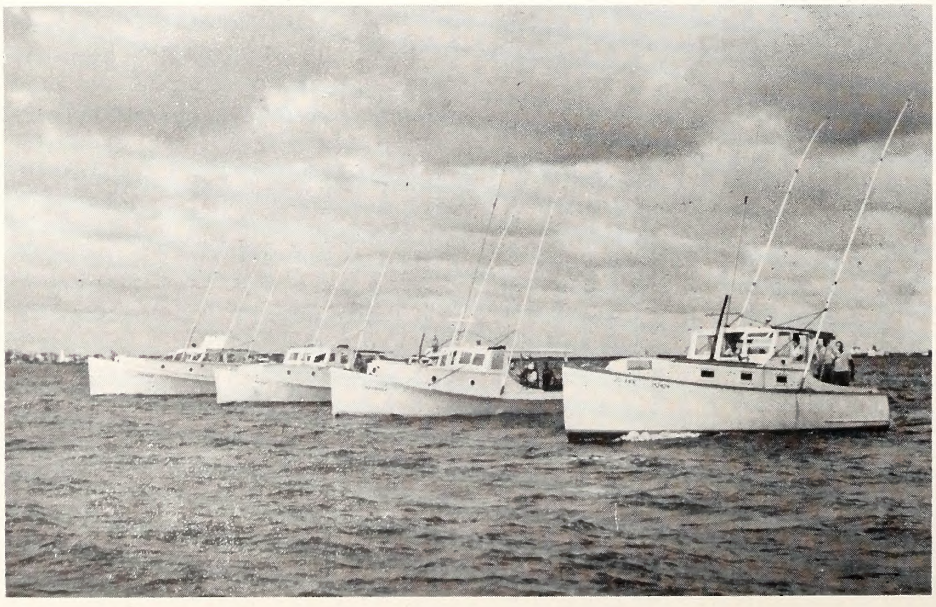
Slowly but surely a new trend is forming down along the Tar Heel coast. In years past, charter boat skippers have made every effort to get their boats loaded down with game fish, go ashore, hang them up in the sun and have a picture taken of the fish and the mighty anglers who caught them.

Of course, it is a lot of fun to get a big mess of fish. But more and more sports minded anglers are saying "to heck with a boat load. I just want to get a couple of nice ones, and I want to take them on my own with light tackle, not drag them to death behind the boat!"

The trend started with the State College's annual fishing school. Although many skippers objected, some were finally convinced that their party would have a lot more fun taking a few big fish on light tackle than they would getting a boatload using heavy tackle and killing them with horsepower. The man who lands a twenty-pound dolphin with a light spinning outfit and eight-pound test line will talk about it longer and louder than he would with the same fish on a telephone pole and a nail-keg type reel. The same goes for king mackerel and other fighters. Get into a school, stop the boat, and let the anglers aboard go to work. You don't get many fish that way, but you are LIVING while you are fighting them.

Marlin, tuna, and other outsize fish need heavy tackle; but if you ever plug for dolphin or mackerel with light tackle, you are spoiled for life!

A quartet of deep sea party boats leave Southport harbor for a day of fishing adventure on the high seas. Anything can happen fish-wise on a trip to the Gulf Stream—leaping sailfish, colorful dolphin, delicious king mackeral, giant marlin, and more. See text above about the use of light tackle for a fishing experience that is unequaled.



The following is part of a letter from the Honorable Herbert Bonner, Congressman from District 1 regarding legislation designed for water safety. Copies of the bill, H.R. 11078, are available from Mr. Bonner's office.

"Dear Mr. Amundson:

"I have read with a great deal of interest your excellent editorial in the May issue of "Wildlife in North Carolina." It is most gratifying to me that my State is taking careful but aggressive action to meet the challenge brought about by the greatly accelerated use of its waters for recreational boating.

"I heartily endorse the editorial. However, there are a couple of points on which I would like to comment because I believe that they may be the subject of misunderstanding if read out of context.

"In the quotation from Wayland Sermons' reply to your inquiry the following statement is made with reference to the boating bill presently pending before the House of Representatives: "This bill is designed to bring about uniformity among the various States and **provides that each will come under Federal jurisdiction in 1960** if that State fails to have its own regulations by that time. So, it boils down to this: **if this Federal bill passes, we can have our own regulations or be governed by Federal laws."** And in the next to last sentence in the editorial the following question is asked: "Should North Carolina get its own workable law, or depend on Congress to tell us what to do and how to do it?"

"Our bill in no way pretends to enlarge upon Federal jurisdiction. On the contrary, it would authorize the States to enact their own laws and enforce them on navigable waters of the United States where the Federal Government now has exclusive jurisdiction in many respects. The provisions of the bill relative to the 1960 date are not any sort of an ultimatum to the States. In anticipation that our bill might

Wildlife Protector Honored With Award

WILDLIFE is proud to announce that Columbus County Wildlife Protector Troy Sigmon was awarded the distinguished Woodmen of the World conservation plaque at a recent meeting of the Chadbourn Camp. The inscribed award was presented by Louis T. Moore, author and historian from Wilmington, in recognition of Sigmon's outstanding work in wildlife conservation and for his educational activities with the youth of his community.

Protector Sigmon is assistant scout master of Chadbourn Troop 504 and explorer advisor. He has given generously of his time and effort to take youngsters on camping and field trips and to inspire them with the values and principles of conservation. One of his projects was to show the Commission's film, "Wildlife Guardians," to every schoolroom in Chadbourn.

become law this year and a number of the 45 State Legislatures meeting next year might desire to assume the function of numbering boats using the navigable waters (presently under Coast Guard jurisdiction), the Committee felt that it would be best to leave the present numbering laws enforced by the Coast Guard in effect until the States had a chance to act. It may well be that some States will not care to assume any responsibility over waters presently under Coast Guard jurisdiction. That is their prerogative. In this connection, the present indications are that the State of New Hampshire finds the reciprocity provisions of the bill objectionable and will not ask to come under the uniform numbering provisions of the bill. Therefore, the bill provides that after a reasonable opportunty for the States to indicate their interest in taking the numbering responsibility presently lodged in the Federal Government, the Coast Guard will put the re-vamped numbering requirements into effect on the waters subject to Federal jurisdiction in those States disinterested in doing so themselves. However, the bill provides for the transfer of numbering responsibility from the Federal Government to a State at any time such a State indicates its interest and willingness to conform to the uniform standards set forth in section 3. of the bill. So, I emphasize that the Congress is not trying to tell you "what to do and how to do it." Nor, is it issuing an ultimatum of any kind. On the contrary, in the interest of uniformity and broadened enforcement authority, the bill delegates to the States jurisdiction which they do not now have."

"Dear Sir:

"I have just finished reading your Editorial in WILDLIFE, and am very interested in boat safety. As a fisherman on the T.V.A. lakes I have seen a growing need of some strict regulations for boats. It is hard to believe that the use of boats, especially big boats, have increased the way they have in the past two years. I did not know there were any regulations in mind except the rules of the "Outboard Boating Club." Your article states that there are regulations for state owned lakes. Do they cover T.V.A. waters? If so I would like to submit my views.

"First, I think the law enforcement should be a new agency, with broad powers. Other agencies do not have time as I am sure the laws would be entirely different and as complicated as they are a man could not handle two jobs.

"Second, I think boats and operators should be licensed according to size and should cover all boats, regardless of power or non-power. I think the boat owner should have a license for his boat as well as operators license. Consideration should be given dock owners. A factor you did not mention in your article which I think causes a lot of accidents is drinking. I have seen more on lakes in one year than elsewhere in three years. That is high but true. I am taking a week's vacation at Hiwassee Lake starting June 1. If I can be of any help in running a survey please feel free to call on me. Any other help I can give I am at your service.

Yours truly,
W. Gilmer Rhodarmer
Waynesville, N. C."

"Dear Sir:

"I have a two-acre lake on my place that is infested with terrapins. Do you have any suggestions as to how I might get rid of, at least, a part of them?

"Also, I have some muskrats that I have not been able to catch in steel traps. Any suggestions on this problem that might help me?

"Thanking you in advance, and with every good wish, I am

Yours sincerely,
Z. H. Rush, Asheboro, N. C."

Dear Mr. Rush:

This is in reply to your inquiry concerning control of terrapins and muskrats in your pond. If the surrounding territory is such that there is no danger of ricochets, they will provide some interesting target practice with a 22 rifle. The alternative is some sort of a turtle trap, of which there are several designs. It is our recollection that the U. S. Fish and Wildlife Service has an illustrated bulletin showing the details of trap design. You might inquire from the U. S. Fish and Wildlife Service, Interior Building, Washington 25, D. C. Do not try to remove all of the terrapins because they are the scavengers which help to keep your pond clean of dead animal matter.

So far as the muskrats are concerned, they are strictly vegetarians and will not damage your pond unless they burrow into the dam and cause it to leak. This can be prevented by spreading chicken wire across the dam so that 4 feet are below the water level and 2 feet are on the bank above. A few twigs, cut to form pegs, will hold the wire in place and pre-

vent it from slipping. This has been found to be the most effective method of preventing muskrat damage to pond dams.

Please advise us if we can be of further assistance to you at any time.

Very truly yours,
J. H. Cornell
Chief, Fish Division

"Dear Sir:

"Will you give me information on how to raise Katy-Dids or green grass-hoppers on large scale. How and what to feed them and to hatch them.

"If you don't have this information please refer me to someone who can advise me.

Yours sincerely,
P. J. Davis, Burlington, N. C."

Okay—any katydid experts in the crowd?

"Dear Sir:

"Would like to suggest that one of your fish biologists make a seining in Tar River above the falls at Rocky Mount Mills and below Davenport Mill to see if the white bass that were placed in this water last year have reproduced. Have heard of two white bass being caught this spring in this area. Also have an idea that some rockfish may have gotten above the falls during the spring high water and may still be above the dam. If they did get above during high water they may have spawned up there too, but doubt if many eggs hatched due to heavy mud in river during this time. Have you got any good ideas for getting rid of algae in a pond fed by deep well? Friend has 5-acre pond with no inlet but is fed by seepage and water from deep well. Fertilizer doesn't seem to help much. If you have a booklet handy on this would like to have it for a few days.

"Filled with bass (I caught 22 the other afternoon) as all the bass are returned to water and all bream removed.

Yours very truly,
Bugs Barringer
Rocky Mount, N. C."

"Dear Mr. Barringer:

"Rod has given me your recent request for an investigation of the Tar River in the vicinity of Rocky Mount. A copy of this letter will ask our Fisheries Investigator, Mr. Harry Powe, to contact you as soon as his schedule permits, and work out the details for the white bass check of the Tar River. Also, he will have some suggestions concerning the algae problem which you mentioned.

"We are enclosing a pamphlet on farm pond management for your use.

Very truly yours,
Duane F. Raver, Jr.
Federal Aid Coordinator"

"Dear Sir:

"Sometime last year I read (I hope) an article in one of the local newspapers or some other publication where there was an extra large catfish caught in one of the Southern States, but I cannot remember the one.

"The catfish was caught with a baby lamb as bait. (Are you laughing by now?) If not it was supposed to weigh over 2000 pounds.

"If I don't find out about this fish I am going to be the laughing stock of San Francisco. Also, I am going to see a brain specialist.

"I am a fisherman and fishermen dream and stretch the truth sometimes but this is not a dream of mine (I hope) but I have to prove it or I am going to throw water on the fire and call the dogs in and go home.

"Hoping you can help me on this I remain,

Yours truly,
Urey A. Storms
Belmont, California"

"Dear Sir:

"Can you suggest anything to rid my premises (around my house) of lizards? They nest and live under the house, and are a pest. Will appreciate it if you will tell me what to use and how to use it to get rid of them.

"Thanking you.

Sincerely yours,
Miss Lucy E. Williams
Warsaw, N. C."

"Miss Lucy E. Williams
R-1—Valley Farm
Warsaw, N. C.

"We have conferred with Mr. Harry Davis of the State Museum regarding a possible solution to the problem of lizards around your home. Lizards are completely harmless, and greatly beneficial in keeping down black widow spiders and other insects such as roaches, ants, and beetles.

"Lizards are a favored item of diet for snakes, but you would no doubt prefer lizards to snakes. Mr. Davis suggests spraying the under side of your house with creosote or some other chemical that would serve as a repellent.

Yours very truly,
Rod Amundson, Chief
Education Division"

"Dear Sir:

"With reference to Mr. Andrews' letter in WILDLIFE IN NORTH CAROLINA (May, 1958 page 23), he appears primarily concerned with preserving the evidence that his hollies are female. Perhaps he could take a leaf from the plant breeders' book and merely bag one or two good clusters on each plant with muslin or cheesecloth before they are entirely ripe.

Yours very truly,
Charles H. Blake, Hillsboro, N. C."

"Dear Sir:

"I am having trouble with deer eating my crop. My land runs right along beside Roanoke River. I don't know why, unless the mosquitoes are so bad that the animals just can't stay in the woods, but almost any time during the day that I go in my field I can see from one to three and four deer right in my field eating my crop. Since I do not have very much crop I have surely got to try and protect it.

"If there is anything that you can do to try to scare them out or keep them out in some way I will appreciate your investigating and trying to do something about the situation.

"I don't like to go hunting even in hunting season, and I'm sure I don't want to get into trouble over shooting wildlife out of season, but I can't stand by and not try to protect my crop; because after all that is the only way I have of making a living.

Yours very truly,
M. L. Robinson, Oak City, N. C.

"Mr. M. L. Robinson
Oak City, North Carolina
"Dear Mr. Robinson:

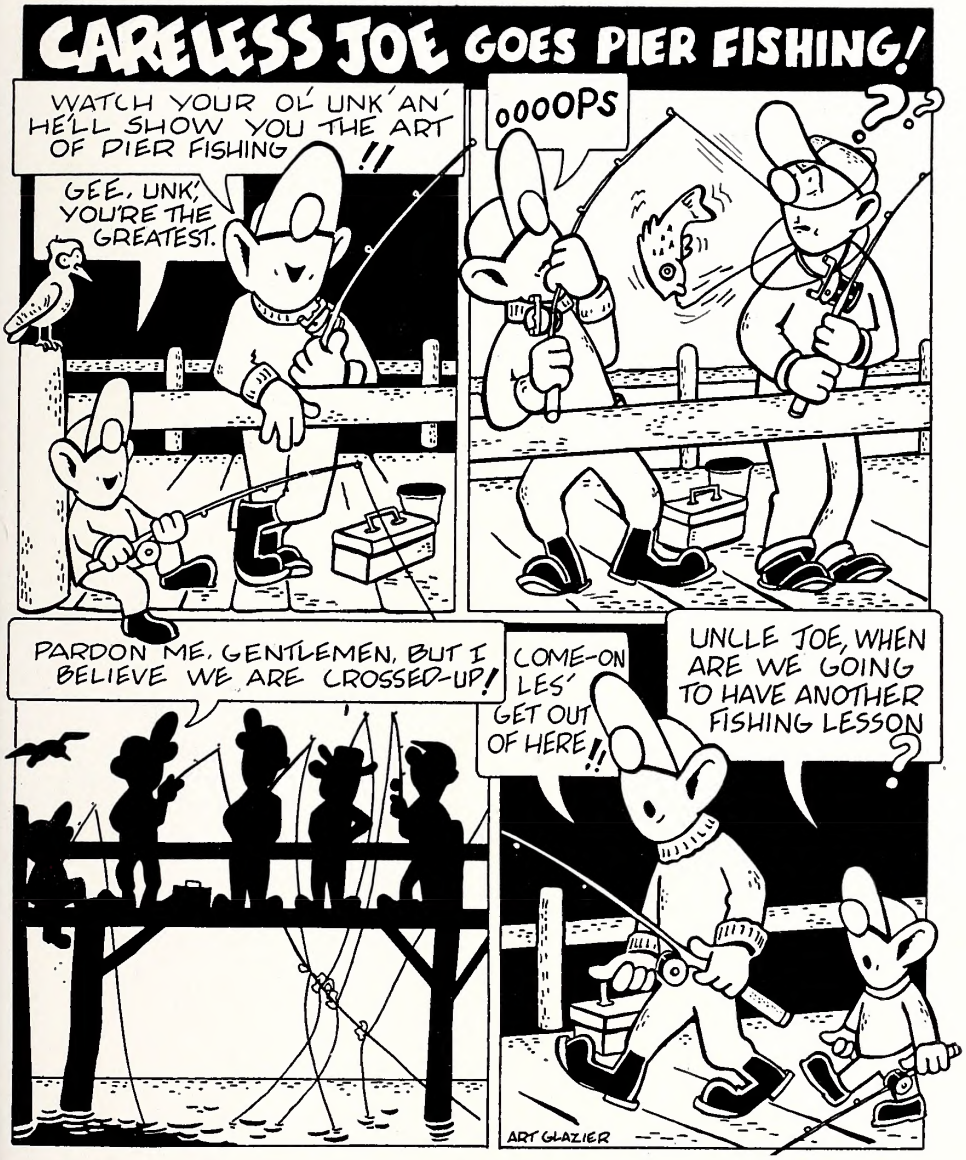
"Your letter of May 22 requesting assistance in the control of crop depredation by deer has been referred to me for reply.

"We have had other requests of this type from different parts of the state. In each case the damage appears to be rather localized—that is, restricted to a township or part of a township.

"There are many things that contribute to the development of this type of damage, but usually it is a result of insufficient natural food or too many deer. In either case the quickest way to get relief is to reduce the deer herd to the point where they can subsist on the native vegetation and are not forced to feed on agricultural crops.

"It has been demonstrated in many places that the most practical method of reducing deer herds is by hunting. In those cases where buck hunting has proven inadequate, the only recourse is to have a short open season on doe deer.

The 1957 Legislature provided authorization for doe deer hunting in places where there is a demonstrated overpopulation. The law requires that a public hearing be held near the locality to provide the people an opportunity to be heard. If, after



the public hearing the Wildlife Resources Commission decides to allow a doe hunt, provision must be made to have each doe tagged by a Game Protector or other Commission representative. In this way, untagged kills which have been made outside the law can be identified and prosecuted, thus preventing wholesale slaughter.

"Last year was the first time this procedure was tried in North Carolina. The season on doe deer was opened for a half day on three western management areas and on one section of private land. Only a very small number of deer was taken and it is expected that these areas will be opened for a longer period this year. By taking a cautious approach such as this, control may be achieved and a proper balance between herd and range attained. When the proper balance is restored, the deer population is able to subsist on forest vegetation and is not forced to rely on farm crops.

Yours very truly,
Frank B. Barick, Chief
Game Division"

"Dear Sir:

"On page 8, of Lee Tebo's article entitled 'What Do You Call It?' of the April issue he gives some very misleading information about the ugly Toadfish.

"Under Toadfish he states 'Given a place in this listing because of its nuisance value to sport fishermen, particularly pier fishermen.' Now Mr. Lee Tebo has evidently not tasted this delectable fish and up to this spring I have never tried it but now I know what I have missed!

"There is a wonderful tasting piece at the back just aft of the head that is as white as the driven snow and I would suggest that Mr. Tebo and others investigate a Toadfish next time they have one on their line. There is a little knack in cutting in back of the head and extracting this piece of meat but I hope to master it this summer, no more throwing back Toadfish with a DAMN, no sir not me, I'm going to eat it.

"They catch large quantities here in the spring and extract this white meat and ship to markets where it sells under the name of Sea Chicken, I believe.

"I enjoy your magazine and realize I am getting a bargain. With best wishes, I am,

Sincerely yours,
W. Bosworth Newsom,
Harkers Island"

Mr. Tebo cannot be blamed for the description of this fish. Lee simply checked the accuracy of the scientific names and the comments under the various fish were editorial. The toadfish referred to is *Opsanus tau,* which is a small fish lying around piers in sounds, and which most people consider to be a nuisance, and which probably has no food value whatever.

Another toadfish, *Opsanus pardus,* also commonly called the blowfish, will puff itself up to an enormous size when excited or irritated. I have dressed out and eaten a number of these and the small fillet found just back of the head is as delicious as you described it.

—Ed.

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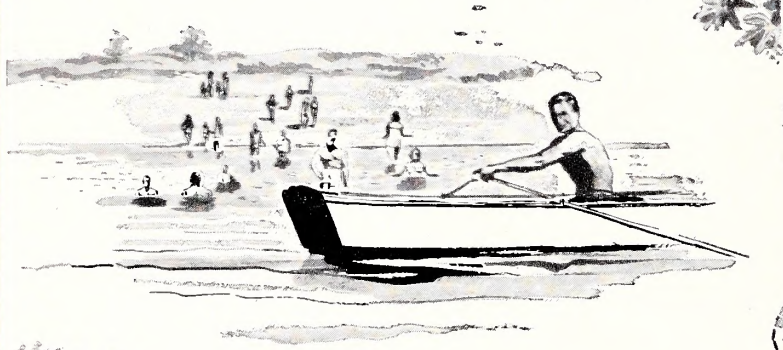
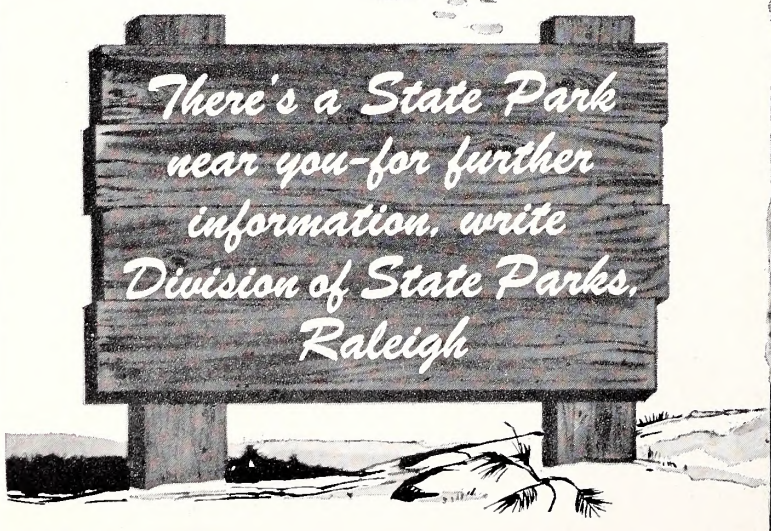


Outdoor Opportunity
in your
NORTH CAROLINA
State Parks

There's a State Park near you-for further information, write Division of State Parks, Raleigh



CLIFFS OF THE NEUSE, FORT MACON, HANGING ROCK, JONES LAKE, MORROW MOUNTAIN, MOUNT JEFFERSON, MOUNT MITCHELL, PETTIGREW, REEDY CREEK, SINGLETARY LAKE, WILLIAM B. UMSTEAD

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North Carolina State Library
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Wildlife

SEPTEMBER-1958

TEN CENTS

in north carolina

Photo by Jack Dermid

White Ghost

If hunters at Holly Shelter will spare this albino buck until he develops a fine rack of antlers, he might become an evasive and legendary white ghost that will haunt them in their dreams and a trophy second to none. Picked up by a well-meaning sportsman along Highway 43 near Red Oak, the white fawn was confiscated last June by Protector C. A. Boone and taken to Holly Shelter Wildlife Management Area where he is being pen-raised. When the fawn is large enough to care for himself, he will be released deep in the refuge.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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THURMAN BRIGGS, *V. Chm.* ..... Lexington
ROBERT M. CARR, *Sec'y* ..... Wallace
G. E. BEAL ..... Red Oak
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Crackshots and Backlashes
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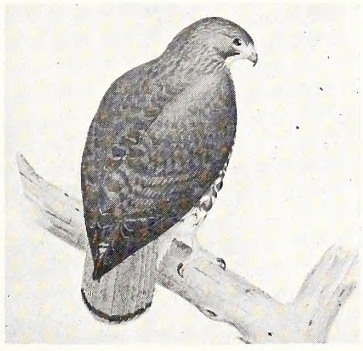
COVER



The Red-tailed Hawk on our September cover is a watercolor by artist Richard A. Parks. This much-maligned bird ranges the whole state during all seasons, and has gained a reputation that is not wholly deserved. Farmers who have seen the Red-tailed Hawk swoop down to steal a chicken have given him other names, such as "Hen Hawk" and "Chicken Hawk." The truth of the matter is that the Red-tail will eat almost anything that it can capture, from a spider to a rat. Despite his occasional depredations, the graceful bird serves a useful purpose in removing diseased and crippled birds and mammals.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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FURS FEATHERS FINS

See how you can use free materials in your classroom this year

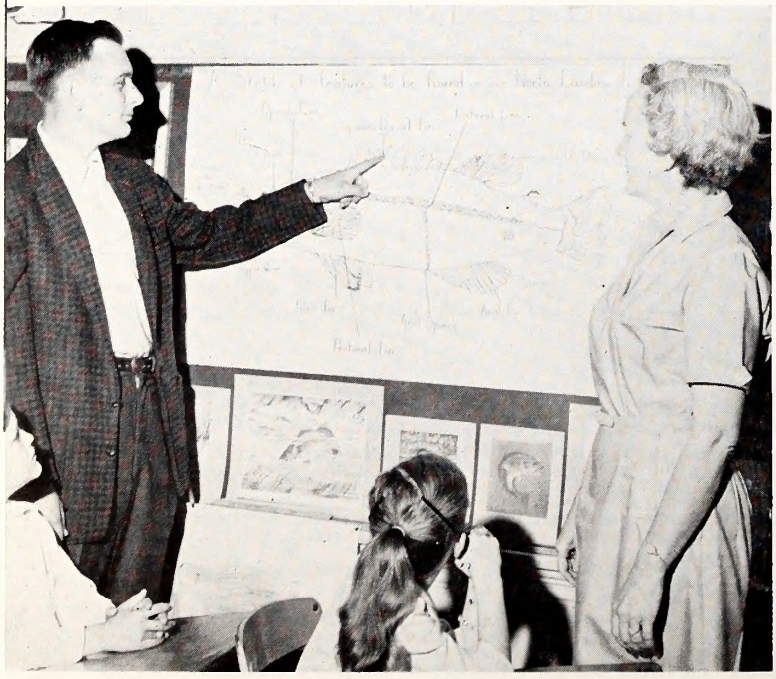
Dear Teacher:

We have something for you! There's nothing similar to be had from any source. You'll be delighted to receive it. A teaching unit on "Furs, Feathers, and Fins of North Carolina" is available free if you would like to teach a unit on mammals, birds, and fishes of our State. Also accompanying the unit are two booklets, "A Guide for Teaching Wildlife Conservation" and "Our Wildlife Neighbors."

The unit was taught with satisfactory results last year at the Joe P. Moore School in Lumberton by Miss Ruth Prevatte. She has written it in full and has kindly consented to let us reproduce it to share with you. In teaching the unit Miss Prevatte correlated each subject in her course of study—reading, language, writing, spelling, arithmetic, science, art, music and physical education.

The children were amazed to learn that 408 birds have been recorded in the State, along with 92 wild mammals and 138 fresh-water fishes. That's a nice variety! The surprise for the children came when they learned something about the furs, feathers, and fins of their own county, Robeson. Throughout the unit conservation was stressed, as well as the interrelationship and interdependence of our natural resources and their importance to man.

In the booklet "A Guide for Teaching Wildlife Conservation," the life histories and a distribution map of the game mammals, furbearers, and game birds native to the State are given. Also included is a brief description of group subjects, group and individual activities, plus a list of mammals of North Carolina and common birds of the State. Copies of the Bird Sanctuary Law, laws protecting the Venus Flytrap, and other helpful aids are to be found in the publication.



LEFT: The Lumberton class called on the district fisheries biologist for information on the local fish populations. BELOW: Reference books expand a child's knowledge and answer many of the questions that have been stimulated by the class work.

Photos by Jim Lee

"Our Wildlife Neighbors" has an outstanding feature—color paintings by Duane Raver of the game fishes of North Carolina, along with several color photographs by Jack Dermid.

If you would like for everything in your classroom to become alive, just teach a unit on wildlife at any grade level. Nothing could give greater pick-up to interest in many subjects, especially reading and science. The children are eager to learn about the creatures around them. Note that the title of the unit includes "North Carolina." Too many times teaching begins with the *unknown* and never gets around to the *known*. For instance, many children can tell much more about the kangaroo in Australia than they can about about opossum in their own backyard. The greatest reason for teaching wildlife conservation is its importance to man as one of our four renewable natural resources, the other three being soil, water, and forests.

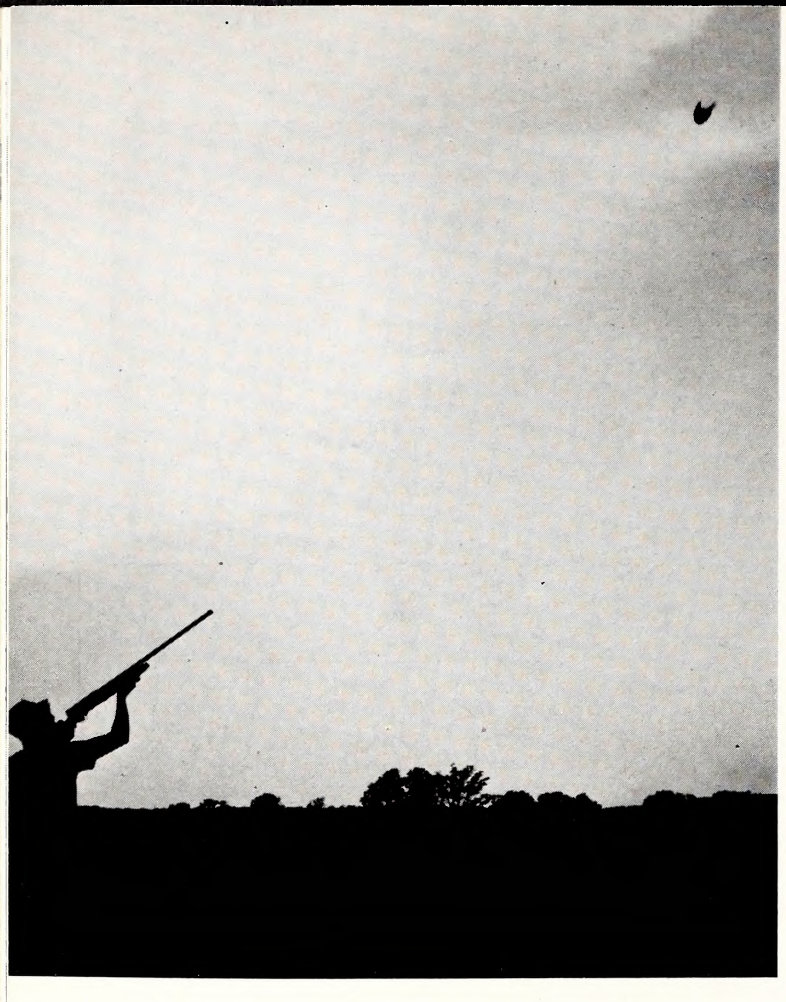
Resolve right now to include the unit in your year's work. Ask for it along with the booklets. Another idea is to subscribe to WILDLIFE Magabine for the class. Of course the Wildlife Commission sends a copy to your library each month, but one copy is not enough for the entire grade. Each child, it seems, could spare just one soft drink or a package of gum each month to pay for his own copy.

These bluebird houses are a result of the interest in wildlife that was created among the children by the teaching unit.

We shall eagerly await your request for the unit and booklets. We hope that your school year will be most delightful in learning about wildlife in North Carolina.

Cordially yours,
Education Division
N. C. Wildlife Resources Commission

The entire class participated in the presentation of a "TV" chapel program to the school and to a PTA meeting, telling and showing what they had learned of their wildlife resources.



IF YOU HUNT *Doves*

By T. Stuart Critcher
Federal Aid Coordinator, Game Division

IT is estimated that well over a half-million doves were bagged last year, and according to preliminary information, the 1958 season may be equally successful. Returns from a questionnaire sent to a sample of licensed hunters indicated that 461,505 doves were bagged in 1955. The 1956 and '57 seasons have been considerably more successful.

To you as an individual dove hunter, this means that an average of two "gray bullets" per hour hunted will be tucked into the back of your shooting vest. Actually the average for the past five years has been 1.77 doves per hour of hunting. Continuing with averages, the five year record shows that—the total bag per hunt is slightly less than 4½ doves—and that about 2½ hours are spent on each of these hunts.

These averages may not appear impressive, especially when it is realized that they are based on bag checks made during the first half of the open season, in September. You must, however, keep in mind that many of the hunters seen in the field are just not able to get their shot pattern in the right place at the right time. Even those who are "average" or better have their off days.

Just as a matter of personal interest one Commission biologist kept a record of the number of shells fired during a big hunt in Warren County—twenty-two hunters used 452 shells to bag 88 doves. This is one for five—or two full boxes for a limit of ten. There are, however, a few exceptional individuals who run a season average of one-and-a-half to two shells per dove. I've personally known of no more than three such hunters in over fifteen years of dove hunting. It may prove interesting to keep a personal record of your own success during the season (in secret, of course).

The vast majority of dove hunters confine their efforts to the early fall season. During this time doves are found in good numbers throughout the state. Actually the peak population is reached during the summer or early fall, usually around the last week in August or the first week in September. The primary concentrations are found in the Piedmont and upper Coastal Plain. The mountain counties contain the smallest numbers of doves and have proportionately less dove hunting.

The concentrations which occur in the Piedmont and upper Coastal Plain during September can be

Hunter success and information on the age of doves as indicated by their wings he'p in setting seasons that insure wise harvest of the birds. The author is shown making a field survey during the hunting season.

attributed, at least in part, to two factors—preferred habitat and agricultural practices. The small patches of pines, weed fields and open rolling terrain of these areas make up the ecological conditions which afford the type of habitat preferred by doves for nesting and general well-being. The early harvest of small grain and early cutting of corn for silage provide an abundance of food readily available to the birds. These newly harvested corn fields, and grain stubble fields which are not too heavily grownup with tall weeds or are being disked or plowed for fall seeding are excellent locations for fall concentrations. Do not overlook crop fields which are being "hogged down." Hog pastures and pens are also good places to find small concentrations. In general, large fields which contain an abundance of small crop or weed seeds and which have plenty of exposed ground surface offer the very best possibilities for large numbers of doves and excellent hunting.

The "bare ground" condition is one which should not be overlooked, as doves do not scratch around for food and seldom enter heavy ground cover in search of seeds.

Afternoon feeding usually begins during the first few hours after noon and continues until an hour or so before sunset if the dove hasn't filled his crop. Often on the first day of hunting the birds will continue to return to the field until sunset or until their appetites have been satisfied. This same pattern may be followed on the second day, but if shooting has been heavy the day before, the flocks will be smaller and the individuals will be considerably more wary. A third day's hunt on the same area may be a waste of time, but a search of nearby fields will probably reveal that another feeding site has been occupied.

These secondary feeding areas are often overlooked by hunters. In fact many dove hunters confine their efforts to the first three days of the season. By doing so, however, they miss many fine afternoons of sport. Often the same fields which afforded "hot" shooting on opening day will be reoccupied by migrant flocks of doves during late September and early October, and a box of shells can be fired without much effort.

And don't forget the water holes. Often excellent shooting is found at certain farm ponds or gravel pits about an hour before sunset. Choose those that have an open shore line and bare banks or exposed bars.

Even when the doves are as thick as flies and are flying low and slow enough to hit with a broom, many hunters have it tough getting half a limit. Too often this may be the fault of the gun and ammunition. As in many other types of hunting no particular gun or lead can be recommended as the ultimate. September dove hunting doesn't offer a really difficult target, either from the point of the bird himself or from the speed and distance of the dove. A 12-gauge, with improved cylinder bore, and a load of 3¼ drams and 1¼ ounces of number 8's or 7½'s is good. Although individual preferences will vary here, the shot pattern of this combination is excellent and if you pick shots within about thirty yards, a satisfactory degree of success is assured. Also, the high percentage of crippling loss (25 percent) will be reduced.

1958-59 DOVE SEASONS

September 6 — October 4

December 11 — January 15

12:00 noon to sunset

Daily limit 10, possession 20

The greatest number of crippled doves result from "sky-busting" or "potting" at birds which are out of range. This not only results in a waste of the resource, but is an exhibition of poor sportsmanship.

Dove hunting is "tops" with many hunters, offering lots of shooting at a game and tricky flier. The weather is mild; the scenery is excellent. There is plenty of elbow room for everyone and the chances of hunting accidents are at a minimum. This combination offers an opportunity which few stop to think about and take advantage of—why not take a youngster along to share the pleasures and the memories? There is no better opportunity to start tomorrow's generation on the right path to true sportsmanship.

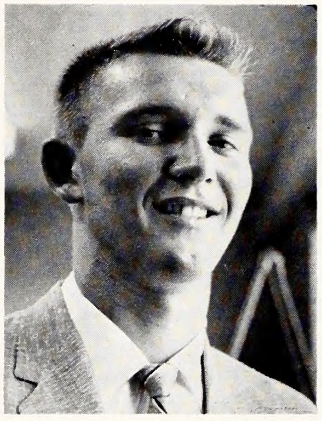
Payoff for the hunter comes as a result of more than just hunting skill. Doves, like other game birds and mammals, need good protection and good habitat to reproduce successfully.

Photos by Jack Dermid

National Wildlife Federation Photo

Conservation IS A NATIONAL PROBLEM

By Rufus Edmisten



Rufus Edmisten, a high school senior in Boone, North Carolina, presented this prize-winning speech at the 30th State Convention of the Future Farmers of America in Raleigh in June. It is highly appropriate that Rufus should discuss this topic; his father is Walter F. Edmisten, Wildlife Protection Supervisor for District 7.

EXPLOITATION of North America commenced when the first white man set foot on the continent. That is what he came for. He lost no time. The forests felt the first impact of the invasion. Forests readily supplied many of the basic elements of livelihood, but they were also considered an obstruction to agriculture, a place of ambush for Indians, and later a barrier to westward migration.

It was not the voyageur, the frontiersman, or the mountain man that conquered and held fast the empire. It was the multitude and mass movement of plodding men of the soil, with their axes, milk cows, and families taking over the land. They moved and held on, then moved again, and finally an empire came into being as a result of their labors.

By the middle of the nineteenth century the western wilderness had been breached but not conquered. Treating land and wildlife as an inexhaustible resource was already the established pattern. When timber was cut or burned, when soil had been exhausted, when game had been killed off, the people packed up and headed further west. By the time the buffalo were killed off and the Indians subdued, part of America was already old and worn out.

As the pioneer plowed his way westward and the timber dweller hacked and sawed through the wooded wilderness of America, the bird and animal life had to give way because the habitat and homes were destroyed. All authorities agree that destruction of native habitat is largely responsible for the decrease in our wildlife.

Surrounded by a moving tide of civilization

The plow took its toll of wildlife habitat, along with the axe, saw, and fire. Thus all game moved further back, until they were eventually surrounded on all sides by a moving tide of civilization. Their numbers were concentrated into a smaller and smaller area. How could they maintain their former numbers under these conditions?

Our game had to face the following conditions:

1. More intensive cultivation.
2. Overgrazing by livestock—especially cattle and sheep.
3. Burning of nesting cover—roadsides, fence lines, ravines, nooks and corners.
4. Our waterfowl and shore birds have felt the heavy hand of commercial interests, which convinced the farmer that his wetlands were worth more under the plow than under water.
5. Our streams and rivers have in many instances been turned into open sewers from wastes of large cities and factories. These streams have been polluted until they no longer produce fish or food for waterfowl and shore-birds.
6. Paved highways and automobiles have made game areas more accessible.
7. The number of hunters has increased many times.

Now I ask if there is a need to conserve and protect our wildlife? "Ding" Darling, in discussing public attitude in relation to our resources, said: "Any attempt to restrict or limit obvious abuse is just trying to take a jar of honey away from a grizzly bear." Whose job is it? Hunting, fishing, and other outdoor recreations are no longer free. They all cost money. Conservation of our wildlife can succeed only in proportion to the effort all the people are willing to put forth and the amount of determination they have to make it succeed. It is no one-man job. It is a National problem.

Conservation is a modern problem?

The American people believe that the conservation of natural resources and wildlife is a modern problem. Actually it is as old as civilization itself. The Bible records that sin, corruption, and the worship of false gods destroyed the kingdom of Nebuchadnezzar. Some scientists believe that it was silt carried down by the Tigris and Euphrates rivers.

Sportsmen are now spending billions of dollars for the equipment that goes with taking fish and game, but they are spending too few dollars and practically no time, effort, and sweat for the perpetuation of wildlife.

Three important divisions

Wildlife is important to all people. The value of fish and game may be divided into three equally important divisions:

1. Economic
2. Recreational
3. Aesthetic

First, take a look at the economic values. Over a thousand pupils in each state in the union are kept in school each year through fines for fish and game law violations. Many people trap fur-bearing animals for a large profit. Businessmen benefit more than any other people from wildlife. When a sportsman buys a hunting and fishing license, he is helping many different people. Add up the price of all the equipment necessary for a deer hunting trip and compare with the license fee. Or let's talk about ducks. The trip will probably include a $150 gun, at least $20 worth of shells, $100 for a boat, and another $200 for a motor. Add clothes, boots, decoys, snake medicine, and at least $2500 for an automobile. This is a tidy sum, yet some hunters will scream louder than a panther because a duck stamp costs three dollars or the state asked for an increase in its hunting license. Excise taxes on sporting goods produce about 20 million dollars each year. Over three billion dollars are spent each year on hunting and fishing in the United States.

Facilities to satisfy the desire

The basic yearning of man for recreation has resulted in enormous expenditures of private capital to provide facilities for the thousands seeking to satisfy this desire. The mountains and seashores

National Wildlife Federation Photo

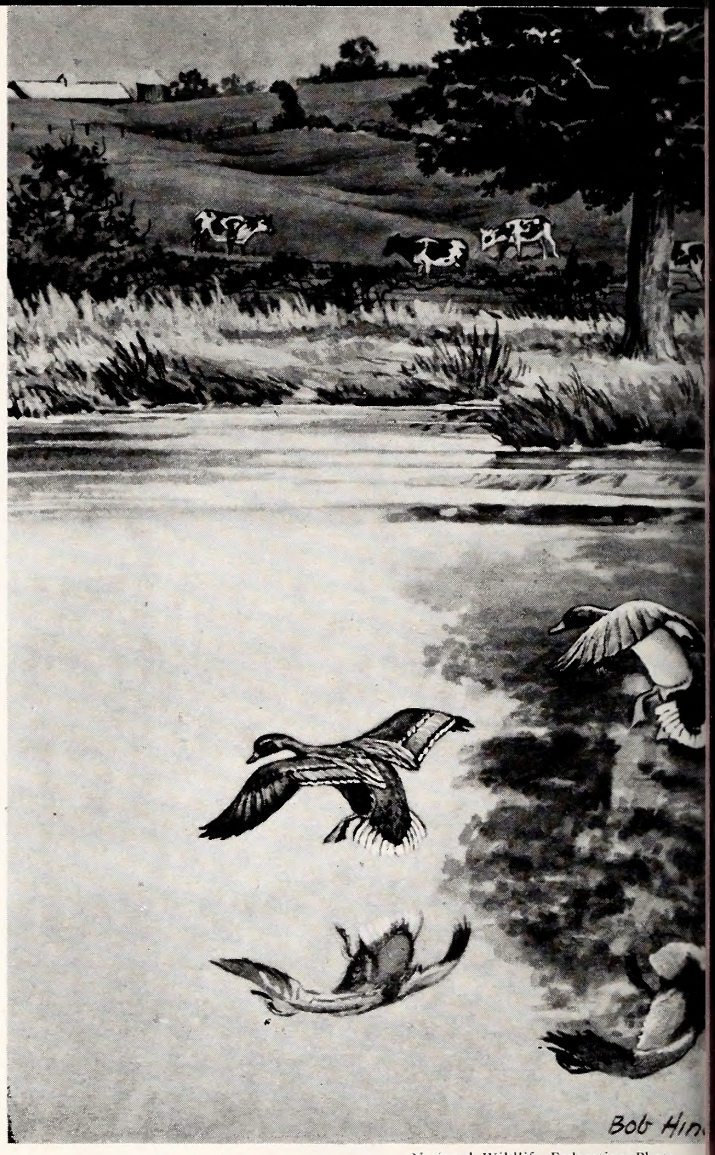
have an appeal which has probably been with the human race since its creation. It is ironic that this basic instinct of man, which makes possible the success of costly recreational developments, is frequently abused. As one walks along the board-walk harassed by blaring juke boxes, the sing-song of the bingo caller, and the rasping croaks of the pin wheel operators, it is not difficult to comprehend how thorough can be the exploitation of man's simple primitive needs for asethetic and recreational enjoyment. We Americans often allow ourselves to be completely misled as to the true values and basic reasons for going to the beaches or mountains.

What has more aesthetic value than wildlife? All states have parks and preserves where people may visit and enjoy the beauty of Nature. We need the tonic of wilderness. We will always be refreshed by the sight of the seacoast with its wrecks, with wilderness and its crooked paths and rocky cliffs, the cool mountain streams with their trout. Many people who are under emotional stress or who are in bad health rely on Nature and wildlife to help ease their tensions and improve their health. Aesthetic values can never be computed in terms of dollars and cents. If we as a nation ignore the aesthetic value of wildlife, we will have made substantial progress on the one-way road to moral degradation and financial ruin.

The farmer and wildlife

The farmer plays a very important part in the conservation of wildlife. It can be said without question that the American farm is the foundation upon which we must base our hopes for any permanent improvement in our game situation. The farmer serves as a host to wildlife both summer and winter. He provides them with all they have in the way of food and natural cover. Any enduring program which is to be beneficial to game must be one that meets the approval of the farmer. This program must provide some way to compensate the farmer for investment of cash or labor in providing natural habitat. The farmer as well as the Future Farmer is the man who will carry the burden of this program upon his shoulders. Whatever plans are made, the farmer should be in on the planning.

Both North Carolina and Texas are giving special courses to their game protectors. Soil conservationists, foresters, and other specialists are being trained in public institutions. These are times when these specialists are in competition with one another, and often all of them are in competition with wildlife managers and directors in general. All of them need to understand every phase of resource and wildlife management. They need to have a warm feeling for all resources and all values, aesthetic as well as economic. These specialists in public life who remain servants of special interests should take another look.



National Wildlife Federation Photo

For protection and perpetuation

In summation, these are the things that should be done for the protection and perpetuation of the nation's wildlife:

1. Expansion and continuation of the present soil conservation program.
2. More trees planted by farmers and on public lands.
3. Conservation payments to farmers for improving wildlife habitat.
4. More trained men to carry out a coordinated program of resources and wildlife management.
5. More Future Farmers of America taking training in wildlife management.
6. No exploitation of public lands by commercial or private firms.
7. Hard and enforced restrictions on stream pollution.
8. Encouragement of more bow hunting.
9. More adequately financed research.

Future Farmers, we can do much to help restore and protect wildlife. If we live by our creed, we can do much for our wildlife. We are great in numbers and we are strong.

Let us remember, whether we are hunting with a gun or a camera, we should always live up to the conservation pledge: "I give my pledge as an American to save, and faithfully defend from waste, the natural resources of my country, its soil and minerals, its forests, waters and wildlife."

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Wildlife Federation Meeting Slated for Hickory

The Catawba County Wildlife Club will play host this year to the N. C. Wildlife Federation's Annual Meeting. The meeting is scheduled for October 8 and 9 in the Hickory Community Center. The annual banquet is scheduled for Wednesday evening, October 8, with a smorgasbord feast promised to meeting delegates. After the business meeting Thursday a fish fry is scheduled at the club's new quarters on Lake Hickory. President Turner Battle has urged federation club members to make early plans to attend the meeting.

1959 Duck Stamp to Feature Retriever at Work

The U. S. Fish and Wildlife Service has announced the tenth annual duck stamp contest, open to artists throughout the nation. The 1959 stamp will show a retriever at work, bringing in a clearly recognizable waterfowl. The idea was suggested by several conservation organizations interested in reducing crippling losses by the use of retriever dogs while hunting. A free copy of a leaflet, "Rules for the Annual Duck Stamp Contest," is available from the Office of Information, U. S. Fish and Wildlife Service, Washington, D. C. With an expected shortage of waterfowl this year and 25 percent of the total waterfowl kill lost as cripples, the stamp idea is especially applicable at this time. The duck stamp next year will cost $3.00 with all receipts to go to acquiring and developing waterfowl wetlands.

Dove Season Opens September 6

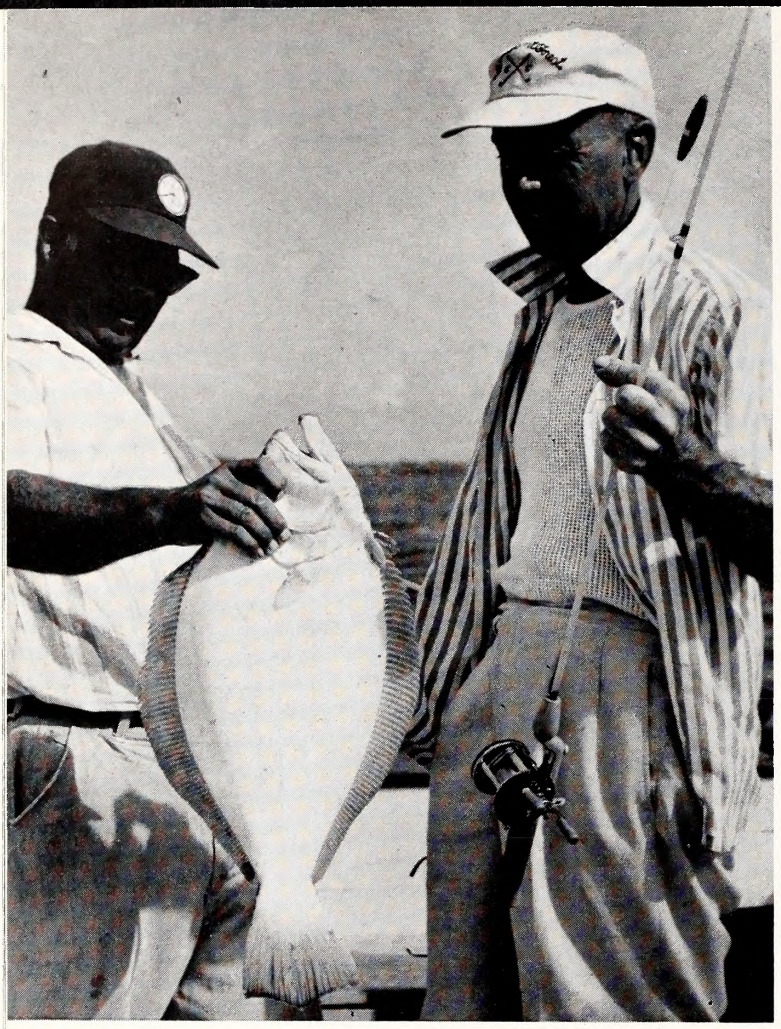
The first segment of the dove season opens at noon September 6 and runs through October 4. The second season will run from December 11 through January 15. Bag limit will be ten daily, 20 in possession, with shooting hours from noon to sunset.

Wildlife Protection School Closes September 5

The 1958 Wildlife Protectors' Training School began on August 17 with 23 students selected from more than 600 applicants. The basic training given prior to employment as a protector is taught at the University of North Carolina's Institute of Government each year in cooperation with the Wildlife Resources Commission. The school will hold commencement ceremonies at Chapel Hill on September 5.

Applications for Lake Mattamuskeet Available

Applications for blinds and guides at Lake Mattamuskeet are available from the Raleigh office of the Wildlife Commission and from L. B. Tunnell, New Holland, manager of the refuge. Applications must be mailed, and will not be valid if postmarked before September 5, 1958. The season on ducks, geese, coot and brant begins November 17.



"Jack, that'll go nearly five pounds!" Harry Chadwick tells successful and happy flounder angler Jack Hart of Greensboro.

Chadwick trolls at walking speed with his party on the "Lucky", waiting for the rod-bending jerk that signals another flounder.

PAYOFF in

Photo Feature by Jim Lee

Here's a different method for flounder fishing

PAYOFF in flounder—that's the result of a new type of fishing going on now along the Carolina coast, as anglers adapt fresh-water methods to salt-water sounds and bays. The toothsome flounder, long a favorite food fish, has superb fighting qualities when hooked on light tackle, and southeastern North Carolina anglers are hooking them day after day.

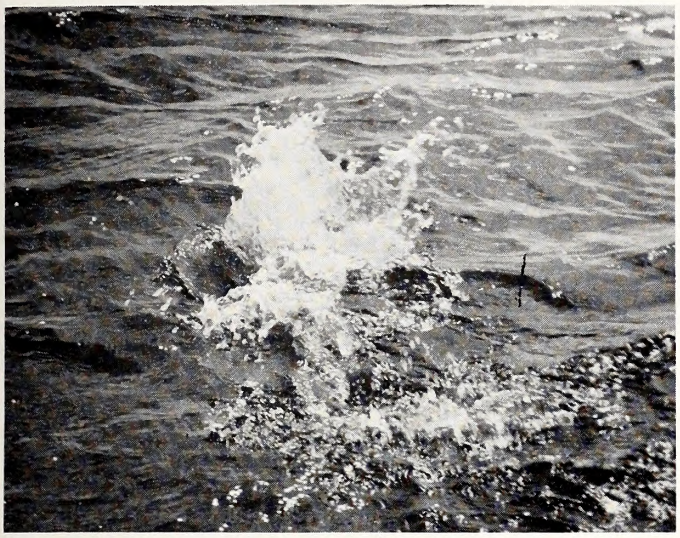
In at least two areas, Shallotte Point and Calabash, fishing guides are providing their customers with plenty of fast action as they troll for the flounder inside sounds and river mouths. The secret of their success is an old fresh-water favorite—live minnows.

Harry Chadwick, with his small fishing boat, the "Lucky," has developed his own method of snagging the bottom feeder, finding plenty of flounder around the docks at Shallotte Point. Harry says, "This sport hasn't been exploited thoroughly yet—when there are good runs of mackerel or blues outside, that's where we'll be. In rough weather we fall back on the flounder fishing."

Chadwick works the "Lucky" up and down the river in front of the docks at what he calls a "comfortable walking speed." From the back of his boat his anglers troll with light bait-casting rods, using a terminal rig designed for the flounder. A one-ounce sinker keeps the bait near the bottom; beyond the weight is a small cork, followed by the salt-water minnow hooked through the mouth with a treble hook. The cork serves to keep the minnow above the bottom just high enough to tantalize the flounder.

Success? Fourteen flounder in one trip should satisfy any angler. Harry uses a similar rig baited with live shrimp, fished while anchored near a likely looking shoal, for spotted weakfish, or speckled trout. His live shrimp have put 31 weakfish in the icebox in a day.

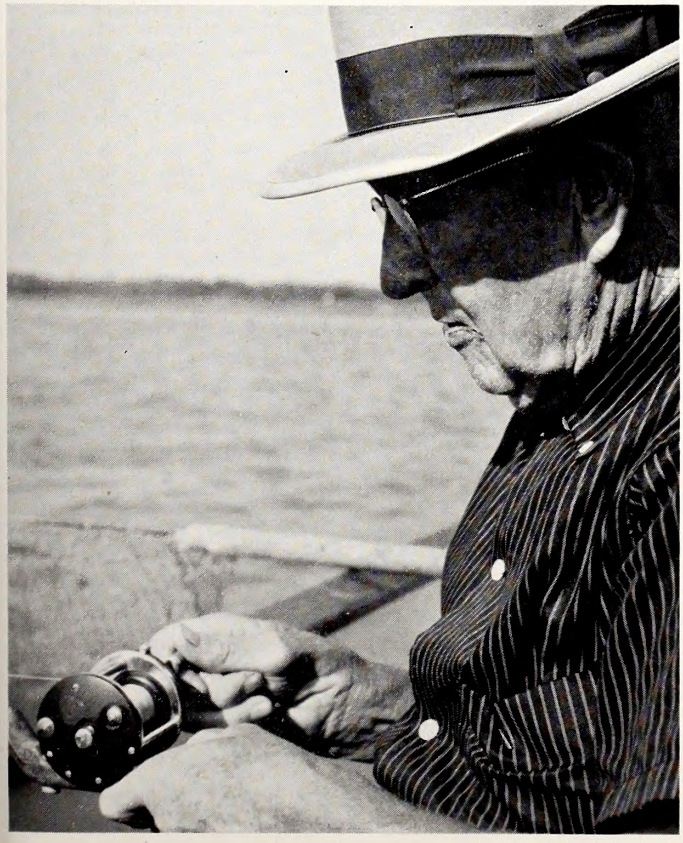
"There ought to be a flounder under that pier." There was! After three years of trolling, Harry has learned to recognize the likely spots for a strike. He says that the summer months, from May through September, provide the best flounder fishing. Success with the weakfish comes from May through July, falls off in August, and picks up again in October to last until shrimp are no longer available. If you are looking for family fishing, try this sport. As 89-year-old W. H. (Pappy) Garner will attest, this is something for everyone.

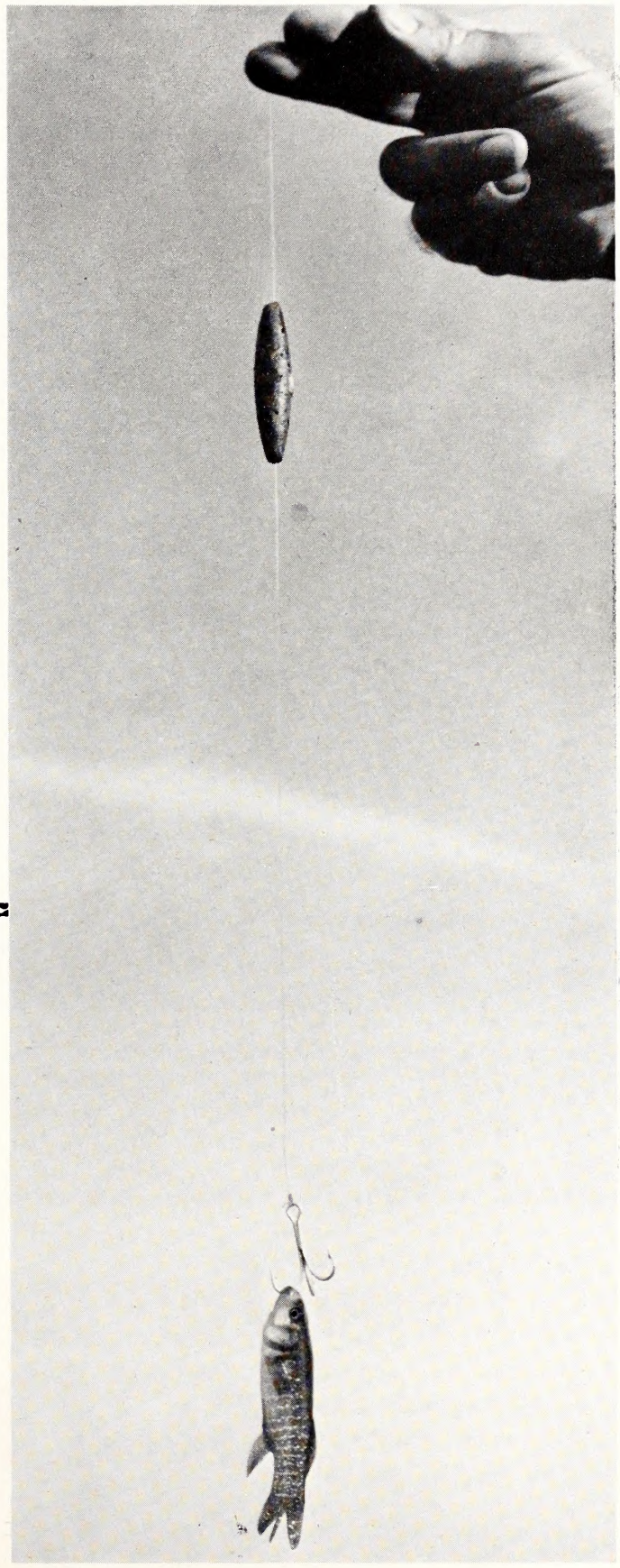


No weakling is the flounder fighting for his life as the fisherman reels him in. This angry splasher topped four pounds.

Flounder

"Get that net ready!" calls 89-year-old Pappy Garner of Bear Creek as he reels in another victim of the minnow trolling.





Chadwick's terminal rig starts with a one-ounce sinker, followed by this cork and salt-water minnow on a treble hook. The minnows are available at Shallotte Point, along with boats and motors for fishermen who prefer to do their own boat handling. Anglers wishing to try their luck with live shrimp for spotted weakfish will find them available at several places on the coast.

Photo by Jack Dermid

Openings left in the forest can benefit wildlife through the growth of wild food and cover plants—while providing work space for harvesting operations such as pulpwood thinnings.

These can go hand in hand:

Good Forestry Can Make Good Hunting

Land, money, and time need not be sacrificed to produce wildlife on forested areas—provided that adequate attention be given to the planning and scheduling of timber management operations. Practices designed to aid timber production can be beneficial to wildlife.

By Floyd Arnold and Donald J. Hankla

Floyd Arnold is Forester for the Wildlife Resources Commission, and Donald J. Hankla is Leader of the Upland Game Restoration Project for the Commission.

EACH year the forests of Tarheelia play host to an ever increasing number of hunters. Presentation of hunting opportunity for this vast army is of vital concern to the Wildlife Resources Commission and its sportsman constituents. Recent developments in the forestry and wildlife fields point the way toward forest management which can insure adequate game supplies for many years to come. These coupled with such items as game restoration programs by timber holding companies, state game regulations gearing game seasons to game supply, and the active operation of designated wildlife management areas by the Commission specifically for production of game, are all encouraging signs for the future.

The need for producing two crops—timber and wildlife—on the same acre of land is especially important these days because as one country philosopher put it "There are more people every day; but land, well, they quit making it a long time ago."

Even without more land, hunting opportunity can be increased. Various industries now own a considerable amount of land in North Carolina and large acreages that were formerly cropped are now planted in forest. More and more forest areas are being managed scientifically to produce timber. Scientific timber production requires certain standard practices. The way that these practices are applied is all important to wildlife. Frequently, what matters most is not *what* is done, but rather *where* and *when*. Timber management practices can be so scheduled as to have little or no beneficial effect on game—or they can be so scheduled as to have a tremendously beneficial effect.

An example of such a coordinated forest management program is one which is being developed on the Commission-owned Sandhills Wildlife Management Area. This area comprises 57,000 acres of land located in the heart of the Sandhills region in Richmond, Scotland, and Moore counties. The dominant vegetation which prevails over most of the area is longleaf pine, scrub oak, and wire grass, which in its "natural" state does not constitute especially productive game range. Species of game present include deer, turkey, quail, rabbit, and squirrel, with numbers and distribution varying considerably, depending on the vegetation.

Land being converted from scrub hardwoods to more valuable timber species will produce good wildlife habitat in the open stands that appear in the early and late stages of the forest.

Photo by Margaret Fisler

Land managament practices on the Sandhills area are those commonly used by commercial timber and pulpwood companies and include site preparation, seedling release, prescribed fire, thinning, development of access roads and trails, fire protection, and timber stand improvement. Inasmuch as the potential for increasing wildlife populations on forested land is so great, perhaps it would be well to examine some of the more common practices that may be used to benefit both timber and wildlife.

Site Preparation

Land that is occupied by dense brush or covered with a mat of pine needles and tree tops resulting from timber harvest must usually be scarified to start a new crop of trees. This consists of exposing the mineral soil so that seed can get to the ground and germinate. It is usually done by pulling a heavy bush and bog harrow with a bulldozer.

Following this operation annual weeds make their appearance and remain until crowded out by perennial grasses, shrubs, and trees. Habitat created in this manner is usually ideal for wildlife. Quail and rabbits find plenty of natural food and cover, turkeys find nesting cover and succulent foods, and deer find choice browse on the young hardwoods which sprout profusely from the stumps.

Although incoming pines ultimately shade out most of the plants which produce good wildlife food and cover on a particular tract, other tracts in the same general area are being developed in a similar manner and will replace those which become unproductive. It is therefore important that the scheduling of this operation be in blocks of perhaps 50 to 200 acres rather than in blocks of 1000 or more. Natural stands usually occur in the smaller sized blocks, actually making it easier in most cases to follow this natural pattern in the scheduling.

Seedling Release

Forest tree seedlings frequently become suppressed by overtopping weed trees. The remedy is obvious: cut the overtopping weed trees. Specifications usually call for cutting only those weed trees that are interfering with desirable seedlings; hence, the result is a patchwork pattern, which, again, is of especial value to wildlife.

Wildlife managers have long recommended cutting small openings in dense stands of trees or brush, an activity usually limited by the cost. This cutting causes sprouting where it can be reached by browsing animals, and sunlight reaching the

forest floor encourages low vegetation such as annual legumes and other herbacious plants, of much value to small game. Hardwood trees that are not suppressing more desirable timber species are preserved for mast production.

Prescribed Fire

Fire has long been recognized by timber managers as an efficient aid in site preparation, control of brown spot and other tree diseases, and for certain other special purposes such as the controlled removal of litter to reduce wildfire hazards. Its use, however, as a management tool is extremely exacting and dangerous and is not recommended except for timber companies, state, and federal agencies which have highly trained crews and are fully acquainted with fire fighting techniques.

Under properly controlled conditions, wildlife habitat may also be benefited from properly applied fire. Fire may be used to remove the dense growth of wire grass which harbors such quail egg eaters as cotton rats. Unchecked by fire, wire grass develops into such dense mats as to make it difficult for young quail to walk through. Periodic burning keeps the grass thin and allows the growth of valuable seed-producing legumes. Fire is also useful when properly applied in destroying thickets of scrub oak which become so dense that they are not able to produce mast. Proper thinning of scrub oak allows the trees to become large enough so that they can produce acorns for turkey, quail, and deer.

Fire is usually very harmful to clay soils, but under certain conditions does little or no harm to coarse, sandy soils. Hence use of prescribed fire for Wildlife management in North Carolina has been limited principally to the large refuges of the sandhills and coastal areas. With increased knowledge, more highly trained men, and more and better mechanized fire fighting equipment, the use of prescribed fire will probably be further expanded in the future.

Adequate roads for timber harvesting and fire protection will benefit sportsmen through easier hunter access and wildlife will gain from seeding roads to low-growing perennial plants.

Photo by David L. Taylor

An important factor when considering fire as a wildlife management tool is the size area that is to be burned. If burning is conducted on large blocks of land (over 1,000 acres in extent), it can be very harmful even under prescribed conditions. Conversely, it is very beneficial if blocks of only a few hundred acres are burned at any one location. The schedule usually recommended for prescribed burning follows a checkerboard type pattern because the areas needing this treatment normally occur in such a pattern. Burning patches here and there in such a manner allows an entire area to be treated over a three-or four-year period.

Thinning

The thinning of timber stands has recently become quite profitable both from the standpoint of marketing trees which are removed as well as releasing the best trees for faster growth. Usually only diseased, defective, and crowded trees are removed. This often results in the creation of small openings allowing sunlight to reach the forest floor to encourage the growth of herbaceous vegetation that is a valuable source of wildlife food and cover.

Timber Stand Improvement

Control of weed trees is often of much importance to the timber manager. Such control may be continuous over large areas or it may be confined to small spots or groups of trees. In either case "TSI" usually consists of the elimination of weed trees which are dominating areas that could otherwise be devoted to timber production.

Where such elimination consists of intensive removal of all den or mast-producing trees it certainly can not be considered good game management. However, the treatment can usually be modified so as to remove only the least productive timber trees with the result that small openings are created and some den trees can also be left. Since it is seldom economically feasible to accomplish a complete kill of all standing timber over large areas even from the forestry standpoint, it is not difficult to conduct timber stand improvement in such a manner as to benefit wildlife. It is important, however, that those who are doing the actual work be properly and thoroughly trained in order to accomplish this dual purpose.

Fire Protection

As described above, fire can be a useful tool both in forestry and wildlife management if used properly. A wildfire, on the other hand, is an uncontrolled burn which kills everything—not only the trees and lesser vegetation but even the soil with its myriads of microscopic organisms that have so much to do with the basic productivity of land. Protection from wildfire is one of the most important timber management practices that can be performed not only for timber production but for game production too.

The game manager stands with the forester in the prevention of wildfire. Wildfire can be extremely detrimental to wildlife. Valuable food-producing trees, shrubs and herbs are killed, and animals themselves are trapped and consumed by ravaging flames. Fire may be a useful tool in some instances but is a deadly master that, if not handled carefully, will totally destroy the best-laid plans.

Development of Roads and Trails

An adequate access road system is the key to proper forest management. High value timber can usually be sold without roads, but the cost of access is deducted from the price that is paid for the timber. Sustained yield management can not be attempted until access is provided.

Access roads and trails are also beneficial to wildlife. Proper distribution of supplementary habitat improvement practices such as pasture and food patch plantings can not be accomplished without a good road system. Furthermore, the end result of wildlife management—the harvest—can not be accomplished without access to the various coverts on the range. Also, adequate access is necessary if game regulations are to be enforced.

An additional benefit which accrues to both wildlife and forestry is that access roads and trails may be seeded to low-growing perennial vegetation, providing a source of food and cover for wildlife. Such seeded trails tend to be extremely valuable to wildlife inasmuch as a supply of food is dispersed throughout an entire area, benefiting a large number of animals. Such plantings help to maintain the roads in passable condition by preventing rutting and erosion, thus making far better access for fire control and management and eliminating much of the annual maintenance with road machinery otherwise required.

Policy and Planning

Since many managed forests are producing only a small part of the wildlife that they are capable of producing, the question may well be asked, "If the same land management practices are commonly used for both timber management and wildlife management, why are managed timber lands not producing their quota of game?"

It is true that supplementary wildlife management practices such as food patches may be important, but the really critical factors are so simple as to easily be overlooked. The most important step is the *inclusion of simple provision for wildlife in policy and operation planning.* Often the most important considerations will cost little or nothing, and require only prior attention and inclusion in the operational plan.

Timber managers are understandably reluctant to consider wildlife items in budgets. However, many landowners, large and small, are now leasing hunting rights, and this trend may be expected to continue until hunting on most commercial forest land is restricted to those who pay for the privilege.

A few years ago most timber companies would not consider sustained yield management of the resource in their budget. Today, these same-owners or their successors are investing large sums in reclaiming land on which the forest has been destroyed. With wildlife in unlimited quantities no longer free for the taking, and with hunting privileges assuming money value, it is only reasonable to expect wildlife to have proportionate consideration in timber land budgets.

Photo by Jim Lee

Although fire can be a useful tool of timber and wildlife managers, uncontrolled forest fire can kill everything—so that adequate forest fire protection is in the interest of all.

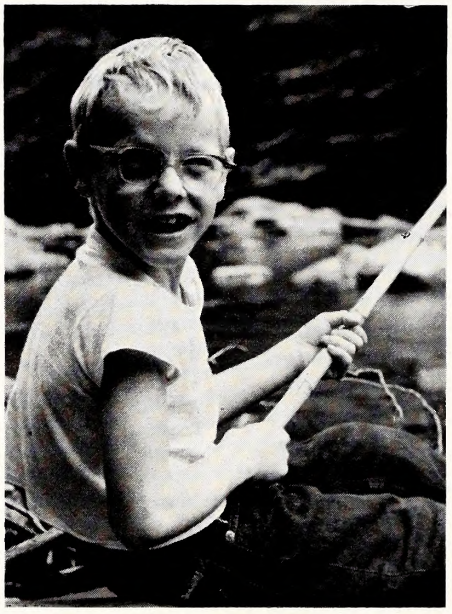
FISHING for THERAPY

Photo Short by Jim Lee

Rebecca Sutton of Waynesville admires a rainbow held by Diana Serviss of Atlanta.

Trout fishing on a mountain stream can be rugged work, but look what these handicapped children can do!

ABOVE: Some folks need a little help, such as eight-year-old Ronald Fox of Statesville. BELOW: Jimmy Suddreth of Lenior sends his lure sailing across the South Toe River.

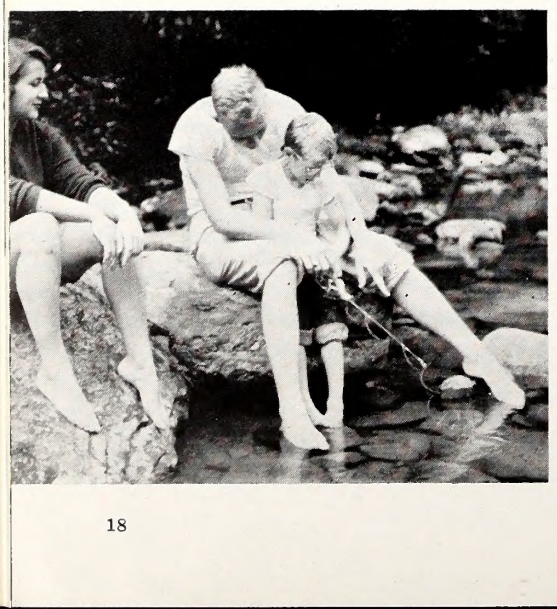


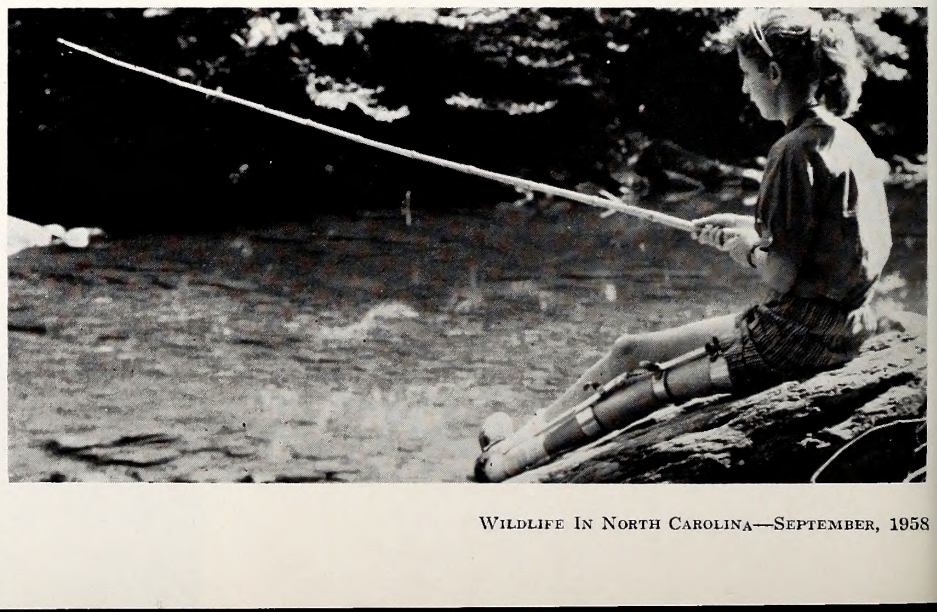
ABOVE: "I'm going to catch the biggest fish in the river with this pole," grins Ronald. BELOW: Red-haired Rebecca watches the clear water carefully for some sign of wary trout.

AT the South Toe River Organizational Camp, on the slope of Mount Mitchell, boys and girls in braces, in wheel chairs, and on crutches were learning to fish this summer, matching their wits with wary trout in the cold mountain stream that flows past the camp.

Operated by the Easter Seal Society of North Carolina, the camp provides an outdoor summer for crippled children and adults from a wide area. The camp, located within the Mount Mitchell Wildlife Management Area, is maintained by the Optimist Club of Asheville.

Pointing to a group of children fishing in the river, camp director Don Baze said, "For therapeutic reasons as well as for the recreational value, we encourage every child to participate in fishing."





NOTES FROM THE FIELD

"Freaks of Nature"

It is occasionally reported, like in a recent letter to the editor of WILDLIFE, that white or partly white birds and animals are seen. In the case of an all-white creature, the animal is called an albino. Albinos lack all or part of the normal pigmentation of the skin or feathers. This complete absence of coloring matter leaves the albino with white hair, pink eyes and white skin. The pupil of an albino's eye is actually colorless, and as a result the blood vessels beneath the surface are visible and the pupils appear pink.

White rabbits are among the most common albinos in the animal kingdom. As a rule, the tendency toward albinoism is passed on from generation to generation, and where there are a few in one breed others are likely to occur. Unless both of the parents have this tendency toward albinoism, however, the offsprings will probably be normal in appearance.

Color variations among wild animals and birds is sometimes in the opposite direction to white, and black examples occur now and then. We do know that an injury will sometimes cause loss of dark color in both feathers of birds and fur of animals.

Strangely colored individuals are generally accepted by their flock or herd. A white deer, for instance, is not boycotted by the herd, but then such an animal as the deer relies more on its sense of smell than on its eyes. This is also true of the majority of birds, which depend more on their eyes than on their sense of smell. You may sometimes notice that where there is a freak blackbird (a not too uncommon occurrence) its comrades treat it as they would one of normal hue. —*Rex Bird*

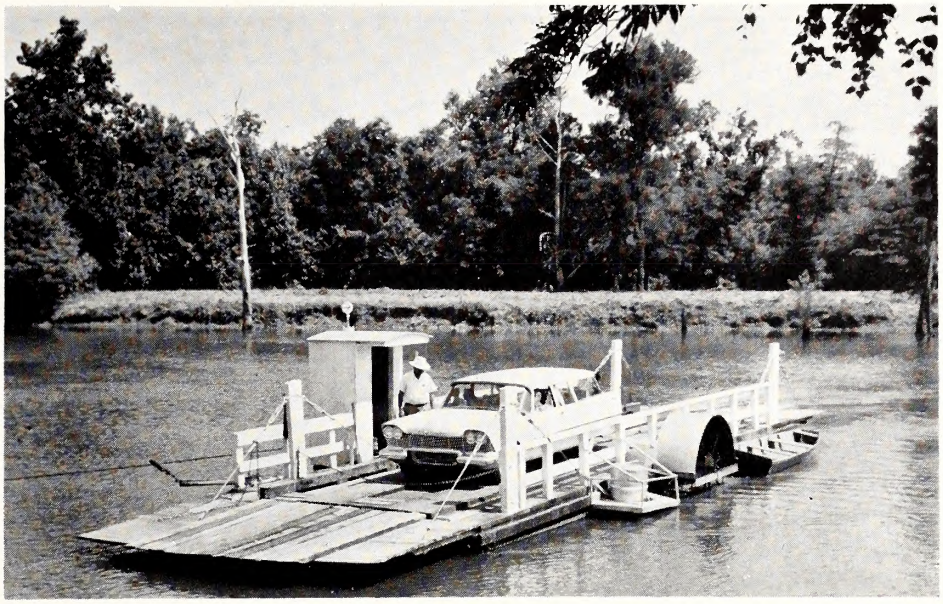


Photo by Jim Lee

A Bladen County landmark for 50 years, Elwell's Ferry on the Cape Fear River is one of the few remaining river ferries. Located between Kelly and Council, the Wildlife Commission's Elwell's Ferry Fishing Access Area is on the Council side.

PROTECTOR OF THE MONTH

A. C. Godwin

Mr. A. C. Godwin, Wildlife Protector for Lee County, was born in Harnett County on May 12, 1931. He completed high school in Sanford, North Carolina, and later was employed as foreman at a local brick company, before accepting employment as a Wildlife Protector on October 1, 1955. He has attended two Wildlife Protectors' Training Schools, conducted by the Institute of Government at the University of North Carolina, in Chapel Hill, North Carolina.

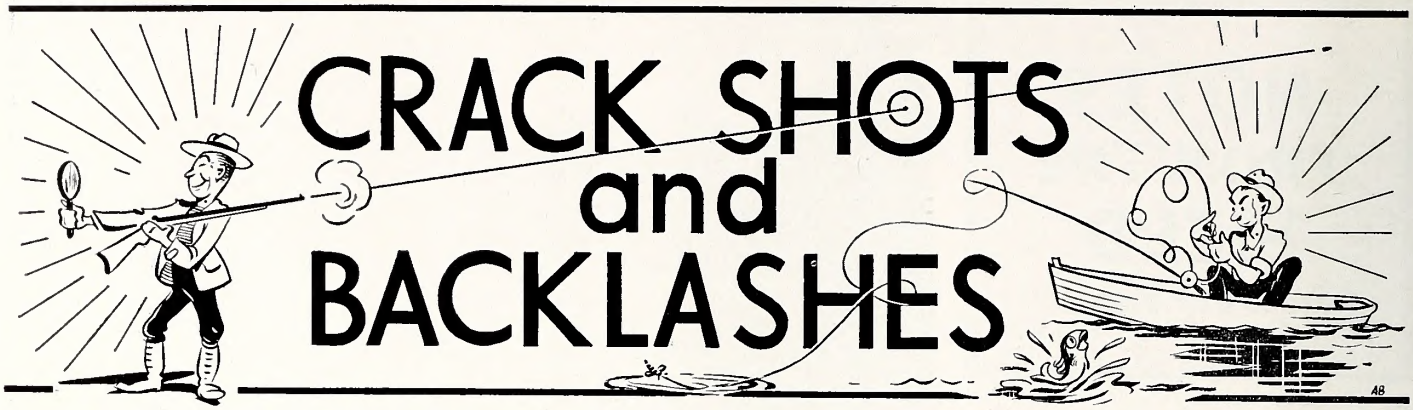
Mr. Godwin is married to the former Mary Alice Epps of Sanford, and they have one son and one daughter. The Godwins attend the Baptist Church in Sanford, North Carolina, where they reside.

ENFORCEMENT RECORD FOR JULY

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other law enforcement agencies in the enforcement activities for the month of July, 1958.

Persons checked	42,617
Total prosecutions	956
Total convictions	938
Total cases not guilty	4
Total cases nol prossed	14
Total fines collected	$3,538.90
Total costs collected	$7,467.80

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

September 10 marks the opening of the hunting season in North Carolina. Down along the coastal salt marshes is an abundance of marsh hens—sora, rails, and gallinules. But will there be a roar of guns on opening day? No, a few scattered shots here and there as a handful of hunters take to the marshes. The season will open and close with about as many birds dying of old age as being killed by number six shot.

Although these figures are not (at press time) official, the marsh hen season will run from Sept. 10 through November 18. Rails and gallinules may be taken at a rate of 15 daily, 30 in possession, with soras bagged at a rate of 25 daily and 25 in possession.

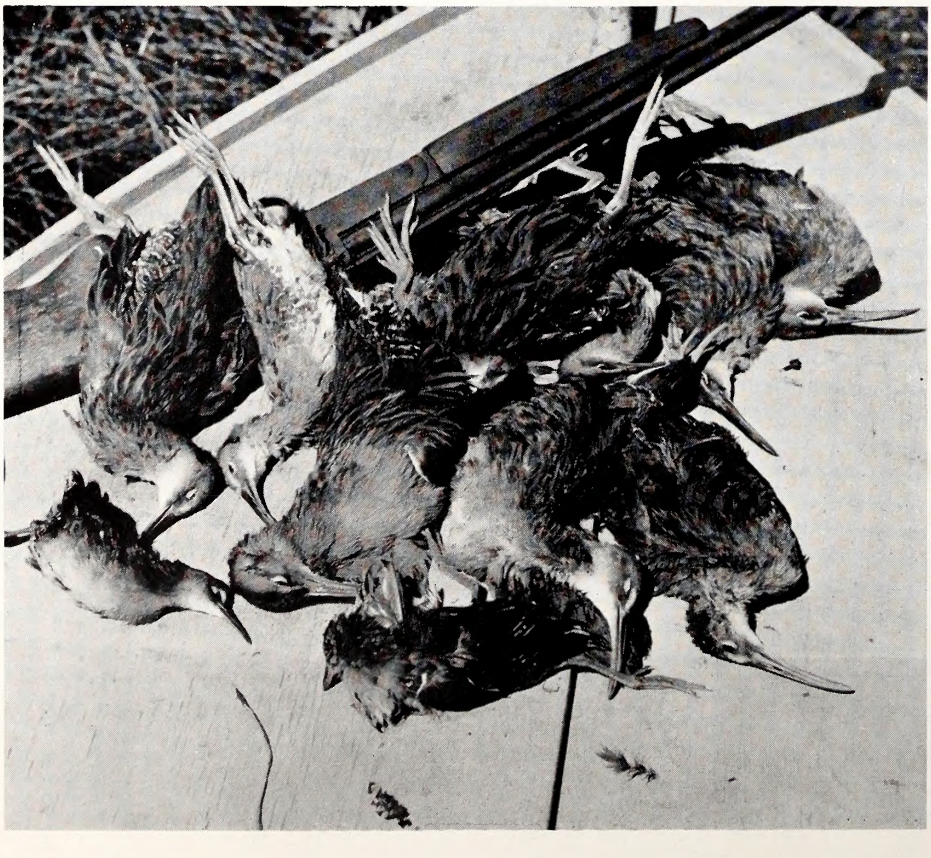
Marsh hens are sporty. They are hard to flush from cover, but their flight is erratic and they challenge marksmanship. On the table the birds are delicious.

WILDLIFE urges more hunters to go out for marsh hens. Best shooting will be during the "moon tides" of September and October when there is enough water on the tidal marshes to permit the use of skiffs.

One word of caution is in order. The marsh water is salty and extremely corrosive. Use an old gun, or carefully clean and oil your favorite fowling piece after using it.

You don't need a duck stamp to shoot marsh hens.

The abundance and variety of rails found along the Carolina coast is shown by this picture of sora, Virginia, king and clapper rails taken on one hunt near Southport.



"Dear Sir:

"In this letter I would like to address those readers of WILDLIFE who are interested in hiking and camping in the mountain areas of our state.

"Because the number of earnest hikers and campers living in one community is usually pretty close to nil, it is often difficult for a person planning a wilderness jaunt to find partners who have time and will to go. I am sure that many North Carolina hikers have experienced a lonesome weekend on the trail because the "other fellow" dropped out at the last minute or have even dropped the idea of a trip themselves because the "other fellow" happened to be the owner of the means of transportation.

"What is the solution to this problem? Hikers and campers, unite! I do not propose a "tightly-knit" hiking club, but a kind of central news service through which a person planning a trip could find others interested in going with him. Over a period of time a directory of the names of those persons interested in hiking and camping might be compiled. If there should be enough interest perhaps a small newsletter could be issued at intervals telling of trips planned by individuals and how many others they would like to have along. Such a central service could make the "washed-up hike or camping trip" a very rare thing.

"If anyone is interested I would appreciate their dropping me a line and telling me about their ideas for such a service.

Sincerely yours,
Jerry Howell, Greenville, N. C.

"Dear Sir:

"In the last issue, in response to a question, you said it it was legal to fish with "pole and line without license." How about with rod and reel, using natural bait, in one's resident county?

"I also wish to mention my appreciation (many other persons also) for the "Careless Joe" cartoons by Art Glazier.

Sincerely yours,
Jimmy Perdue, Raleigh"

The law involves the type of lure rather than the type of equipment used. In brief, a casting rod or fly rod would have the same legal status as a willow switch or a cane pole as long as natural bait is used. Someday we hope the legislature will remove this exemption from county resident fishing license requirement so that people who benefit from fish protection and fish management will have an opportunity to help foot the bill for wildlife conservation.

"Dear Mr. Barick:

"After reading your very fine discourse on deer productivity on the Uwharrie Management Area in the current issue of WILDLIFE IN NORTH CAROLINA, I would think that I would be safe in saying that North Carolina sportsmen would be in favor of more logging, to create a greater kill. This after all, to my way of thinking would be the final objective.

"I got a great kick out of reading your article. May we have more of like nature from time to time? As you no doubt know I am very much interested in all phases of wildlife; but especially deer.

"With every good wish for your continued success in the wildlife program, and kindest personal regards.

Very sincerely yours,
Ralph Lineberger
Lincolnton, N. C."

WILDLIFE heartily agrees. We must increase carrying capacity of our woodlands in order to increase the deer populations. At the same time, however, we must keep deer populations *within* the carrying capacity through regulated harvest. Part of the science of wise forest management and wise wildlife management is sensible harvest of the trees and wildlife produced.

"Dear Sir:

"Here is a little story, I think you might be interested in. It concerns a wee baby martin.

"On June the 12th of this year, little Peedee, that is what I call him, was born in his bird house. The bird house is 15 feet in the air; he was either pushed or crawled out of his house on the porch, by his mother, or daddy. Seeing him on the porch, I knew it was just a matter of seconds before he would tumble down, so I ran in the Station and got hold of a pillow that I had, and put it where he would hit in case he did fall. Well, it could not have been over 10 seconds before he fell right on the pillow. He didn't get hurt, so I carried him in the house. I fed him water, bread, and yolk from an egg. I am keeping a diary on him, every day, and the time he is fed, and what I feed him. He is seven days old today, and he is growing and is fat as a hog. He sleeps a lot, and doesn't want to be awakened. If I can raise him it will be interesting for you to read the diary and pass it on to your readers of WILDLIFE, to which I subscribe. I would appreciate any information that you have on the European Martin.

"Best of luck to your WILDLIFE magazine.

Very truly yours,
Claude Jewell
Wilmington, N. C."

Governor Luther H. Hodges visited the July meeting of the Wildlife Resources Commission to see T. N. Massie of Sylva take the oath of office as District 9 Commissioner and stayed to speak informally to the Commission. Gov. Hodges praised the work of the Commission, saying North Carolina has the best staff in the country.

"Dear Sir:

"I am writing with reference to hunting dogs that are injured in steel traps.

"During the past hunting season I started out for an all day rabbit hunt, thinking I would get a little pleasure out of the cost of my license. A few minutes after I started hunting on a creek bottom two of my best beagle dogs were caught in traps. Their legs were injured so badly I had to give up hunting for several days.

"I know many dogs are injured by traps that are left setting during the day. I have even heard about dogs being destroyed by the trapper who was afraid to try to release the trapped dog. I think something should be done about this problem. Trappers should be required to keep their traps harmless during daylight hours while hunting dogs are being used or he should be required to post signs in areas where his traps are set.

"It is bad on a hunter to go to the trouble of raising and training a hunting dog, and then have his legs ruined by a careless trapper.

"I hope something can be done to give the hunters a little protection against having their dogs injured by thoughtless trappers.

Yours sincerely,
C. C. Moore, Salisbury, N. C."

"Dear Sir:

"As a hobby, I am gathering information about and plants and cuttings of yellow, not red, berried American Hollies —Ilex opaca xanthocarpas. I have the list of certified nurseries of each of the 48 states, a Forestry Personnel list of several states, ours included. I have written to thousands of nurserymen, Game Protectors, Forestry, Military and Indian Reservation Woodsmen, etc., with, I think, gratifying results.

"For some reason most collectors both private citizens and National Societies have covered our mountain and coastal sections, but have largely ignored our Piedmont section. I have been able to locate quite a number of yellow-berried hollies in Piedmont North Carolina, and hope to register some of them.

"As a subscriber to and devotee of WILDLIFE IN NORTH CAROLINA, I wonder how many of your readers are aware of such a tree or trees? I will answer any and all correspondence relative to the subject.

Sincerely,
J. D. Rankin
Salisbury, R-5 Box 518, N. C."

It was almost a busman's holiday when the western refuge managers and assistants met in late July to make plans for the managed hunts this fall. Meeting at Standing Indian Refuge the game division personnel brought their wives and children for their picnic preceding the conference.

"Dear Sir:

"Enclosed are seven subscriptions to WILDLIFE IN NORTH CAROLINA. These subscriptions are the result of an argument over the new "Farm Pond" regulation. Thanks to the very clearly defined article in January's issue, I won. And with the subscriptions you won too!

Yours sincerely,
Ervin Brantley, Charlotte, N. C."

"Dear Sir:

"We have on an 8-acre pond a good number of mallard ducks. Something is catching the young ducks about as fast as they hatch and go in the water. We are sure they are caught in the water. We have heard a splash as the ducks disappeared. We suspect the largemouth bass. Are bass known to catch small ducks? If not what else might it be?

Yours sincerely,
C. C. Hatley, Mt. Pleasant, N. C."

"Mr. C. C. Hatley
Mt. Pleasant, N. C.
Dear Mr. Hatley:

This is in reply to your inquiry concerning the problem of something catching the young mallard ducks on your fish pond shortly after they hatch. Your assumption that it may be largemouth bass is entirely possible. You should be able to determine this by fishing with a surface plug which will generally imitate the color, speed, and action of a duckling. If bass are the culprits, you should be able to reduce the predation by this method.

It is at least equally likely that the ducklings are being taken by snapping turtles. In many ponds, where a large population of snapping turtles is present, the ducklings are eaten as soon as they start to swim, and even the adults may be preyed upon. Their standard method of killing adults is to catch them by a leg when they are swimming and pull them under the water so that, after much struggling, they eventually drown and are eaten.

Large numbers of snappers may be present in a pond without making their presence known, especially if there are muskrat holes around the shoreline. They will crawl into the holes just far enough to have their heads above water and will lie there during much of the day. They can be located and pulled out with a "turtle hook." Such a hook consists of a piece of one-fourth to one-half inch steel rod bent in the general shape of a fish gaff, filed to a sharp point, and then hardened. The bend of the hook should be about four inches across. The hook should be set in a stout wooden handle some six feet in length. The hook is used by wading in the pond and exploring the spaces under the bank with its point. It will be no trouble to recognize a turtle shell when the hook slides over it. The trick is to hook the snapper under his shell, drag him out, and deposit him in a sack. Snapper hunting can provide considerable excitement and make your lake safe for ducks at the same time.

Very truly yours,
J. H. Cornell, Chief
Fish Division

Let's Take Another Look

Fire ant control in the South during the program's first year of operation was a jig-saw puzzle. Pieces now are beginning to fall into place, however, and the picture they partially reveal isn't a pleasant one. The end result may be a horrible one, comparable to burning down a barn to kill the rats.

Preliminary reports this spring from areas treated with heptachlor for fire ant control indicated heavy fish and wildlife losses. In fact, the National Wildlife Federation on May 5 wired Secretary of Agriculture Ezra Taft Benson to request that operations be suspended until research could assay results and possibly discover alternate and safer methods of treatment. In reply, M. R. Clarkson, deputy administrator of the Agricultural Research Service, wired:

"Reports of wildlife losses following fire ant eradication programs in the southern states *fail to confirm* alleged wholesale poisoning of wildlife . . . The Department and agricultural officials in Alabama seriously doubt that the treatment of one-tenth of one per cent of the total area in the nine southeastern states which may be treated this year will have any significant effect upon the wildlife populations" . . .

Disregarding distortions of fact (nearly one-third of Alabama's land area is to be treated in the next ten years), the Federation's concern is substantiated in a *preliminary* report just released by the U. S. Fish and Wildlife Service. The report stresses that "Data on possible *long-range effects* upon reproduction and maintenance of

populations (Editor's note: presumably wildlife) will not be available for several months." Information on *immediate* effects, however, reveal heavy losses. Excerpts from the report follow:

Hardin County, Texas: 1,400 acres treated on March 3, 1958: "Pre-treatment counts showed 8.9 birds per mile of roadside and 6.1 birds per acre; post-treatment counts showed 1.4 birds per mile and 1.7 birds per acre . . . Quail numbers dropped 77 per cent in ten days after treatment and survivors were observed to have difficulty flying . . . 91 birds, 2 nutria, 3 rabbits, 1 squirrel, 2 raccoons, 1 opossum and 3 armadillos found dead . . . Heavy loss of aquatic life despite efforts to protect canals."

Wilcox County, Ala.: 4,000 acres treated with heptachlor and dieldren: "Fourteen of 16 coveys of quail on treated area disappeared and are presumed to have been killed . . . Newly killed specimens still being found 7 weeks after treatment. Thus far, 180 animals of 24 different species have been recovered . . . Heavy losses of fish and frogs . . . Heptachlor and heptachlor epoxide found in all specimen examinations completed."

Acadia Parish, La.: Observations on two treated plots, 300 and 400 acres in size: "Initial mortality of animal life apparently high . . . Mammals, birds, fish, crayfish and snakes found dead."

Decatur County, Ga.: Various sections of 48,000-acre treatment area: "No evidence of damage in some sections but 'heavy' losses in 2-acre sample plot . . . Bird and animal activity appreciably lower than in adjacent untreated plots . . . Presence of heptachlor and heptachlor epoxide in birds and rabbits demonstrated by chemical analysis."

Still unanswered are several other important questions, including these:

How will public health be affected by farm produce from treated areas? Can people "accumulate" poisons through consumption of meats, dairy products and contaminated water?

Will the wide-spectrum, nonselective poisons (with 3-year residual effects) necessary for the strongly-resistant fire ant also destroy beneficial soil bacteria and insects, including those which pollinate agricultural crops?

Is the program itself successful in eradicating fire ants and worth the $2,400,000 annual federal expenditure?

Let's take another look—a long one—at the program, Mr. Benson!

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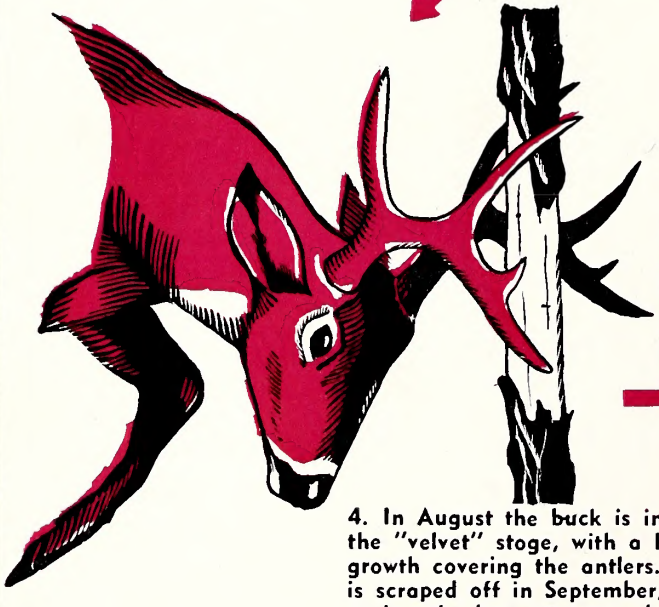
The WHITE-TAIL'S ANTLERS

The buck white-tail sheds his antlers each winter after the breeding season. The stages of development of the new poir ore shown here.

1. In late April and May the new growth appears as two knots. Growth is slow at this stage.

2. Late in June the ontlers appear as branching spikes and are soft and bulbous. Growth is very rapid until, hardly a month loter, they hove reached full size.

3. By late July the antlers have attained full size, but remain soft and sensitive, rich in blaod ond nutrients.



4. In August the buck is in the "velvet" stoge, with a hairy growth covering the antlers. This is scraped off in September, exposing the bony structure beneath.

5. By fall the antlers are rubbed and polished in preparation far the rutting seasan when the bucks battle for the possession of does.

TAYLOR

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Wildlife

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TEN CENTS

in north carolina

Photo by Jack Dermid

CLOWN of the FOREST

Ernest Thompson Seton, a famous naturalist, once wrote that the black bear ". . . is a big, fat Happy Hooligan, the happy-go-lucky, eternally good-natured merry-maker of the woods . . . his career is a succession of odd and amusing adventures . . ." But beneath this coat of playfulness, the bear is a mammal of great capabilities. He can run with amazing speed and endurance, climb any tree that will support his weight, and is tough, alert, and secretive enough to afford a real challenge to both hunter and hound.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

Quail feeding in soybeans is commonplace in eastern counties during autumn and early winter. But the abundance of autumn's harvest—wildlife foods and crop left-overs—is often deceiving. Hunters see food everywhere and wonder why there are not more quail. They should visit their hunting grounds in late winter and early spring. Then autumn's harvest will be largely consumed or lost to decay. It is during these lean times that shrub lespedeza and other perennial food plants prove their worth, for their seeds do not deteriorate and are available when most needed. Why not plant food patches where you hunt? Free seedlings can be obtained from the Wildlife Commission. Painting by J. W. Taylor.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Report to the hunters:

1958-59 HUNTING OUTLOOK

By Clyde P. Patton
Executive Director

Illustration by J. W. Taylor

NORTH Carolina hunters will again enjoy a long hunting season with liberal bag limits during the 1958 - 1959 season. The shooting started September 6 when the season on doves opened statewide. Hunting of some kind will continue through February 14, 1959, when the season on rabbits, quail, and wild turkey closes.

MIGRATORY GAME BIRDS

Doves

Another bumper crop of doves in the Atlantic States will make possible a five-day bonus for dove hunters this year, with the bonus days divided between the early and late segments of a split season. The first season runs from September 6 through October 4 with a daily bag of ten birds and a possession limit of 20 after the first day of shooting. Shooting hours are from noon to sunset. The second segment runs from December 10 through January 15, with the same bag limit and shooting hours. Best hunting will be in Piedmont counties in the early season, and the Coastal Plains during the second segment.

Marsh Hens

As in the past there will be far more sora, rails, and gallinules than there will be hunters to partake of the harvest. The season will run from September 10 through November 18, with shooting hours from one-half hour before sunrise to sunset. Fifteen rails or gallinules will be allowed daily, singly or in the aggregate, with 30 in possession. The limit for sora is 25 daily or in possession.

Woodcock

The woodcock season opens Thanksgiving Day, November 27, and continues through January 5, with shooting hours the same as for marsh hens. The limit will be four daily, eight in possession. There is little apparent change in woodcock populations over last year.

Waterfowl

The outlook for goose hunting is about the same as last year reflecting little change in the goose population. At press time, however, it appeared that there would be a reduction in the bag limit for diving ducks due to a poor crop of birds in the northern nesting grounds that feed birds into the Atlantic flyway. The shortage of birds is especially significant among the diving ducks such as canvasbacks and scaup. The shooting season will be only 60 days this year compared to 70 last year.

UPLAND GAME

(See regulations for dates and bag limits)

Deer

The outlook for deer hunting this season is even better than for last year, when doe deer were taken in some areas for the first time in many years. In certain eastern sections deer have become so numerous that there have been frequent complaints of depredation to farm crops. There will be legal taking of doe or anterless deer again this year after full investigation of deer herds and public hearings to give people living in deer-heavy communities an opportunity to express their desires regarding a season on antlerless deer. Large portions of the Sandhills Wildlife Management area will be opened to deer hunting this year, and the South Mountains area will be opened to deer hunting for the first time.

Bear

Bear populations seem to be about the same as last year. A good level has been maintained through strict protection, and there is no reason to believe that the kill will be much greater or smaller than last year's harvest.

Wild Boar

Again boar hunting will be confined to the three westernmost counties, Clay, Graham, and Cherokee. There have been no significant changes in the wild boar populations, and hunting conditions may be expected to be about the same as last year.

Racoon and Opossum

Both racoon and opossum have continued to increase in the eastern and western sections, and hunting will probably be even better than last year. 'Coons have been successfully transplanted to western Piedmont sections and have increased to the point where hunting is much better than it was five or six years ago.

Squirrels

The squirrel situation could be described as spotty, but good. There has been a good crop of young in many sections, and a bumper crop in others while less production in still others.

Rabbits

Large numbers of young rabbits have been reported throughout the summer, and there is every indication that this will be an excellent year for rabbit hunting in most sections of the State. The outlook for rabbit hunting in general is much better than it has been for several years.

Quail

Ol' Bob White has more than held his own this season. There was a high winter survival rate, and in general we have had an excellent nesting season. A bumper crop of quail may be expected in most sections of the State.

Wild Turkey

Little change reported in the turkey situation. Hunters who go after turkeys may expect fair to good hunting in most parts of the turkey range.

Ruffed Grouse

The spring census showed a slight increase over last year. We have had a good nesting season for grouse and hunting may be expected to be excellent throughout the grouse range. Grouse hunting is a rugged sport, and the supply of birds will undoubtedly far exceed the hunters' demand.

General

The general hunting picture in the Tar Heel State is good. The waterfowl situation is somewhat discouraging, but fluctuations in the waterfowl populations must always be expected.

North Carolina game is plentiful despite constantly increasing hunting pressure and a gradually diminishing habitat. Through cooperation with farmers, sportsmen, and organized groups it has been possible to maintain an abundant supply of game despite detrimental factors.

North Carolina is a great outdoor state. We urge people to enjoy it—in a sportsmanlike manner, and SAFELY.

Illustration by Clay McGoughy

This aerial photograph shows one of the channels cut in early August across the barrier beach north of Corolla. Bulldozed down to the level of the high tide mark, the channels could have allowed the storm tides of August and September hurricanes to sweep across the narrow peninsula to Currituck Sound in the distance. The Wildlife Commission replaced the sand in the open cuts to prevent the formation of an inlet or serious beach erosion.

Threat to the Outer Banks

THE WILDLIFE COMMISSION TOOK ACTION TO SAVE CURRITUCK SOUND

THE future of Currituck Sound as a fresh-water haven for largemouth bass and migratory waterfowl dangled by a thread for a few days this summer, when attempts were made to open three channels north of the tiny village of Corolla—thus allowing the Atlantic Ocean to sweep into the broad and shallow sportsman's paradise.

First word of the threat to Currituck came on August 4, when the wildlife commissioner for District 1, Orville Woodhouse of Grandy, was told that bulldozers were at work along the isolated beach in the area owned by the Swan Island Club. Woodhouse immediately called Clyde Patton, executive director of the Wildlife Commission, who in turn called a former president of the gun club. Learning that Richard Knight of Pawtucket, Rhode Island, is now president of the club, Patton placed a call to him. Knight could not be reached by telephone during the two days following, nor did he reply to a letter and telegram from Patton until August 18.

Shortly after the first information was received in Raleigh, fish biologist Art Dickson was sent to Corolla to investigate the situation. Along with specialists from Virginia and the U. S. Fish and Wildlife Service, Dickson is conducting a three-year study of the sound, and was thus on the spot within hours to determine how much damage had been done to the narrow strip of land.

Three broad channels had been cut in the sand, slicing the dunes down to the level of the high tide mark. Behind the dunes that had held back the salt water, a small creek draining a marshy flat had been swept clean of its reeds and brushy border, ready to hasten the flow of sea water into the sound. The ditches were cut in low places that had been once reinforced with sand fencing by the Wildlife Commission—in an effort to prevent the formation of inlets.

What is back of the attempt to open channels for salt water into Currituck Sound? And what damage would such salt water do?

Currituck Sound has long been one of the most productive wildlife areas in the United States. The fresh water, sometimes carrying a trace of salt, produced aquatic plants that attracted huge flocks of ducks and geese. Relatively shallow, the sandy bottom made an ideal site for the growth of these waterfowl food plants, and at the same time the

water produced largemouth bass that provided thousands of sport fishermen with angling.

During the history of Currituck Sound the turbidity of the water has fluctuated considerably—not only from time to time but from one part of the sound to another. Suspended matter in the water may be in part responsible for a decrease in waterfowl food plants, since the aquatic vegetation is shaded from the sunlight on which it depends—although good growths of waterfowl foods have been found in relatively turbid water. Although no long-term records are available, some fishermen claim a decrease in the bass population—again blaming the turbidity, noting that the micro organisms that provide a basis for the food chain of the largemouth are hampered by muddy water.

Exactly what is causing the turbidity in Currituck Sound remains a mystery. Studies conducted by the Wildlife Commission's fishery biologists over a period of several years have delved into the problem of water chemistry that might affect the waterfowl food, but these studies have not solved the problem. The same condition in Virginia, where the sound is called Back Bay, has resulted in the three-year study now being conducted by the wildlife agencies of North Carolina and Virginia, with the cooperation and active participation of the Bureau of Sport Fisheries and Wildlife, U. S. Fish and Wildlife Service.

Some things have already been learned during the course of the study. Although salt water will precipitate the turbidity found in such muddy rivers as the Mississippi, causing the silt to settle out, the turbidity in Currituck Sound does not seem to be affected by salt water. Laboratory experiments conducted with varying percentages of sea water showed no noticeable clearing of the water after one month.

So far, there has been little to indicate that salt water added to the sound would improve wildlife plants. Yet, some of the people interested in Currituck have demanded that the Wildlife Commission introduce salt water—and went ahead on their own after the Commission refused to take such a drastic course of action without the scientific evidence to justify it.

The investigation now in progress may show that some added salt water would improve the situation—or it may not. Should it happen that the biologists recommend added salinity, one of the major problems will be that of controlling the amount. Inlets that would allow storm-driven waves to flow unimpeded into the sound would not permit any control of the amount of salt water added.

When the extent of the bulldozing had been learned, Director Patton took immediate action with the approval of members of the Wildlife Commission. Storm tides expected from late August and September hurricanes threatened. Time was short if an inlet or serious erosion of the beach was to be prevented.

An easement signed by the Swan Island Club president in 1956 gave the Commission the right to construct and maintain sand fencing on the club's property. On August 8, Patton wrote the current club president, Richard Knight, requesting on behalf of the Commission that the club restore the sand fence in the areas where the club had cut through, pointing out the easement and the authority that the club had given the Commission to prevent break-throughs on the club property.

While awaiting a reply from Knight, Patton consulted the Attorney General's office and learned that the right-of-way agreement apparently gave the Commission the authority to rebuild the dunes and bill the club for the expense involved.

The letter of August 8 was followed by a telegram on August 14. "Since we have received no reply to our August 8, 1958 letter to you and have been unable to get you by telephone; also in view of the approaching storm season, this is to advise that the North Carolina Wildlife Resources Commission is exercising the February 23, 1956 right of way agreement signed by Edwin H. Arnold, agent and president of the Swan Island Club, Inc., by entering immediately upon property of said club on the Outer Banks north of Corolla and with the use of heavy equipment filling the channels cut across the barrier beach to prevent salt water intrusion into Currituck Sound and possible serious beach erosion. We have no alternative but to take this action in the interest of the sportsmen and other citizens of North Carolina."

On the following day, August 15, heavy equipment was moved to Corolla and work began. Within a few days the barrier dunes had been rebuilt—as much as men and machines could rebuild. Danger still exists, for the sea oats and grasses that helped stabilize the dunes will take years to come back—but the open invitation to sea water has been closed.

The Commission acted with the full support of Governor Hodges and the other state agencies concerned with Currituck Sound. Hurricane relief director Col. Harry Brown fully endorsed the Commission's action during the emergency, and State Health Director J. W. R. Norton, writing to the Governor, said, "Any addition to the salinity of Currituck Sound would, in our opinion, result in an increase in the production of salt marsh mosquitoes, thus aggravating a serious problem that already exists in that area."

The joint study group may find that some increased salinity would aid wildlife in Currituck Sound. But until their research has been completed, the Wildlife Commission will continue to maintain its sand fences along the Outer Banks, holding back the tides that *could* spell ruin for a vast wildlife resource that serves thousands of North Carolinians.

Mr. Winchester makes a CALL

This important article tells how conservation units were introduced into Wake County Schools

Mr. G. L. Winchester

SCHOOL PAGE

By Lunette Barber
Education Representative

Photos by Jack Dermid

Mr. Fred Smith

Mrs. Katherine Revell

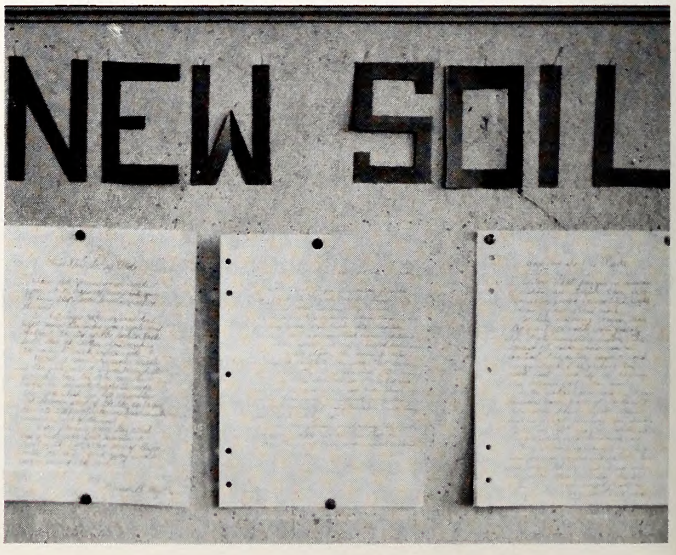
THIS conservation story began with a telephone call, perhaps one of the most important calls ever made on behalf of the youth of North Carolina.

Mr. G. L. Winchester, Wake County Soil Conservationist, dialed Mr. Fred Smith, Superintendent of Wake County Schools, to discuss the possibility of teaching soil and water conservation in county schools. Although in the midst of a rapidly expanding building program, Mr. Smith listened with great interest and gave his immediate approval with the suggestion that Mr. Winchester phone Mrs. Katherine Revell, Elementary School Supervisor, to discuss his plans for the project with her. Mrs. Revell, too, was enthusiastic about introducing conservation education into the classroom and agreed to get a program underway. Mr. Winchester's dream was on the road to reality.

More phone calls were made, and soon Mr. Smith and Mrs. Revell were invited to a special dinner as guests of the Soil Conservation Service district supervisors where a cooperative program for teaching conservation was outlined. After additional dis-

Poster contests gave students an opportunity to use and develop their own creative ability. Conservation teaching stirs young minds into fruitful activity.

Conservaton is easily integrated with reading, writing, and arithmetic. A theme assignment on the formation of new soil produced results worthy of posting on the bulletin board.



cussions with Mr. Winchester and others, Mrs. Revell designed a workable, long-range plan: Six key schools with thirteen sixth-grade teachers were selected to begin the project. Then the idea was sold to the principals and teachers. In the discussions with the teachers, it was understood that they were to use their own creative ability, to incorporate into the unit at least one planned field trip conducted by a person with soil conservation know-how, to have as one of the evaluative activities a poster contest, and to present an assembly program as an outgrowth of the unit. At the assembly program, prizes were to be awarded for the most original poster. Local merchants were to be given the privilege of donating and presenting the prizes which were to be awarded to grades rather than individuals.

At the end of the school year, Mrs. Revell made the following comments:

"We feel that this venture was such a success that we cannot begin to enumerate all the benefits. Approximately 375 boys and girls carried into their homes more than 1,600 pieces of soil and water conservation materials, consisting of pamphlets, booklets, maps, charts, pictures, clippings, and all types of data concerning the ugly picture of waste of our natural resources. Also went individual notebooks, original poems and plays, and other information on what the student as well as other groups can do to prevent this waste.

"Several groups produced miniature displays illustrating proper farming methods such as strip-cropping, contour farming, cover crops, grassed waterways, use of trees on steep hillsides, and farm pond construction. Enthusiasm never lagged in any group.

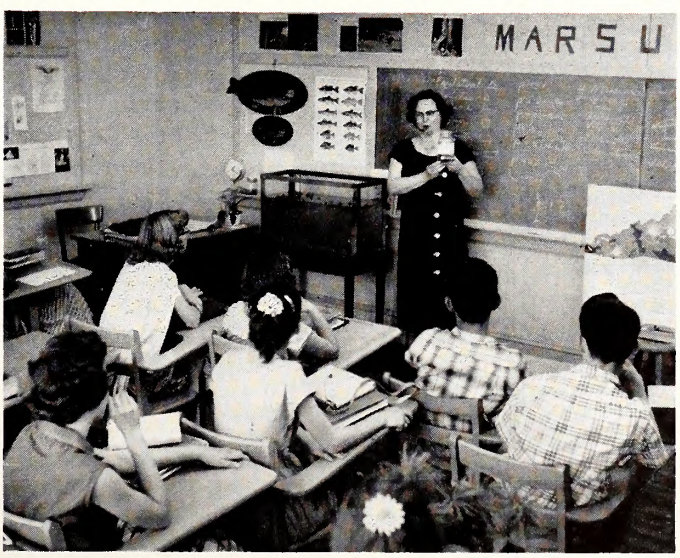
"We also feel the study of soil and water conservation has done as much for the children as the children will eventually do for our natural resources. Besides giving the pupils a knowledge and respect for natural resources, the study has stimulated all-around growth in their education environment. In research work, they increase their vocabulary and mastery of English. They wrote many letters and used arithmetic in figuring amount of rainfall, percentage of topsoil lost, and in making graphs and charts. They gained valuable experience in teamwork, cooperation, and in their responsibilities to society. Last, but certainly not least, the children had an opportunity to develop and use any creative ability that they might have. For example, two rather retarded boys who had never seemed to be able to succeed in any phase of school work won prizes in the poster contest, probably experiencing their first taste of accomplishment and success. This alone was worth the entire project to us as school people.

"One group noticed how gullies had formed on

Bare soil results in erosion; cover saves soil. Students at Fuquay Springs School prove their case with demonstration.

At Wakelon School, soil and water conservation teaching was correlated with a school-ground beautification program. Outside assignments stimulate an appreciation for the land.

During 1957-58, forestry and wildlife (below) units were introduced in grades seven and eight in three Wake County schools.



the school playground, and brought it to the attention of the community. Interested parents brought their tractors, gave their labor, and converted the washes into a beautiful and useful playground.

"The success of this project has convinced us, as administrators, of the great value of such a course in the elementary school curriculm. The potential benefits that the students reap from the experiences and the good that they may do for the land are incalculable. We plan to make this unit of work a permanent part of our classroom instruction in the future."

So it is! Since its beginning in 1953, the unit has grown until it is now taught in every sixth-grade classroom in Wake County schools—ever increasing in accomplishment and value.

During the year 1957-58, two more conservation units were introduced in the same manner. In grades seven in three schools, forestry units were taught; and in grades eight in three schools, wildlife units were taught. Now that the new school year is underway, it is hoped that soon all grades seven in Wake County will include forestry units and that all grades eight will include wildlife just as all grades six teach units on soil and water conservation.

It should be pointed out that Wake County is not alone in the teaching of soil and water conservation. Teachers in many other counties are hard at work with their own units, and soil conservationists in North Carolina are continuing to cooperate with supervisors and teachers wherever possible. They have made two extremely useful publications (published by the Soil Conservation Society of America, Des Moines, Iowa), *The Story of the Land* and *Wonders of Water,* available to active teachers in 76 of our 100 counties.

It would be a great accomplishment if we could have conservation of *all* our natural resources taught in *all* North Carolina schools. It can be done if the boss (school superintendent such as Mr. Smith) gives his approval and the supervisors, principals, and teachers are interested in doing the job. The children are eager for it. Nothing could be more important, for without public instruction, how will the average future citizen develop an appreciation for America's natural resources? Where are we going to get our future soil conservationists, hydrologic engineers, foresters, biologists, and other specialists to do vital conservation work? Are the schools today teaching them?

Perhaps the most important telephone call Mr. Winchester ever made was the one to Mr. Smith that resulted in soil and water conservation education in Wake County schools. Do not be satisfied with what is happening to your minerals, soil, water, forest, and wildlife. Dial the right number, get busy, and you will be surprised by the amount of good than can be accomplished.

Planting Walnuts on th

ALMOST every woodland owner has access to a supply of nuts from walnut trees and acorns from several kinds of good oak, such as white, northern red, black, and cherry-bark. And there is hardly a farm woodland so fully stocked with trees that it would not benefit from planting these fine hardwoods in natural forest openings and other clearings on suitably fertile land. Seedlings established in existing stands should receive sunlight at least part of the day.

The ease with which a woods owner can convert these available walnuts and acorns into tree crops will come as a surprise to many who always thought that raising tree seedlings was the exclusive job of nurseries. A few simple steps can insure a supply of good seed for forest planting.

Collecting acorns and nuts

Walnuts and acorns must be gathered in autumn soon after they fall, so that insects and small animals don't eat most of the crop. Only fully developed and apparently sound seed should be collected. White oak has the peculiar habit of germinating soon after hitting the soil in the fall, and should be collected before the new root penetrates the ground. But no matter what the species, once the seeds are gathered, prompt and careful storage is the only thing that will keep them sound and capable of growing. Temporary storage in a cool, dark basement or pit will prevent the walnuts and acorns from drying out and losing their ability to sprout. Before storage, acorns should be treated to prevent insect damage. Such treatment is not necessary for walnuts.

All acorns are subject to heavy infestation of nut weevil. This weevil lays eggs in the green acorn on the tree, and when the eggs hatch, the weevil larvae eat out the meat of the acorn. Acorns that are apparently sound often contain these weevil eggs, which hatch during the winter and destroy the seed before spring. Fortunately, a simple hot-water treatment will kill the weevil larvae but not harm the acorn.

Treating acorns

All acorns should be treated as follows soon after collection and before storage: Place acorns in a

Here's a way to provide future food and homes for our forest wildlife species

...nd Acorns

...arm

By David F. Olson, Jr.
Southeastern Forest Experiment Station

vessel of water at exactly 120°F. A candy or jelly thermometer can be used to check the temperature. The addition of the acorns will cause the water to cool down; raise the temperature back up to 120°F. and hold it constant for 40 minutes. While the acorns are over the heat stir constantly to prevent heat damage to those at the bottom of the vessel. Placing the acorns in water will also serve to separate the bad ones from the apparently good ones. All acorns that float in water should be discarded. Of those that sink, about 75 percent will be sound, usable acorns.

After weevil treatment, white oak acorns should be planted directly in the woods or fields, but the other oaks need some over-winter conditioning. Walnuts do not need any special handling before storage. It is not even necessary to remove the hulls.

Winter storage

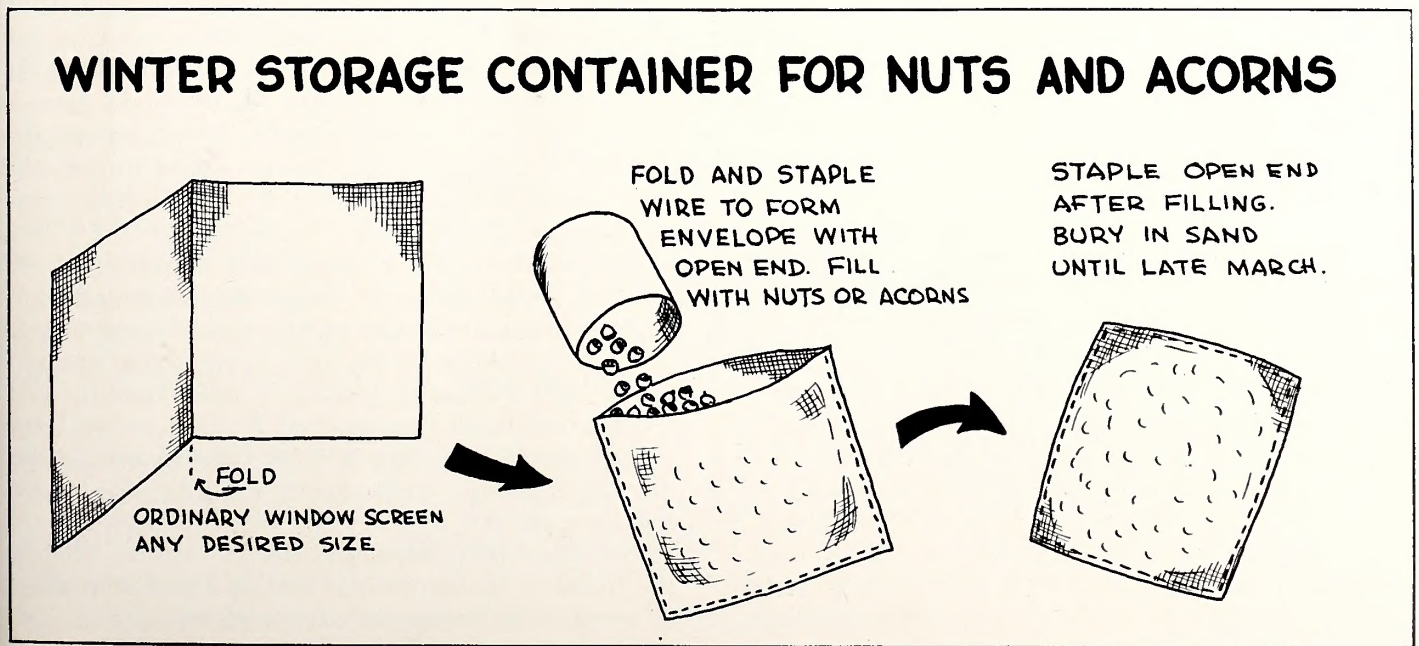
Nuts of black walnuts and acorns of northern red, black, and cherry-bark oak all lie dormant over winter and begin growth the following spring. They can be planted in the fall, but the long winter in the soil gives mice and squirrels ample time to find them. A better practice is to bury them outdoors over the winter between layers of moist sand, and plant in the spring when germination has begun. This cuts down the time when rodent damage is possible, and increases the odds of getting a crop of seedlings.

A simple way to store nuts and acorns is to put them in a screen wire container so that the seed will form a layer about 2 inches thick, and then bury the entire unit about 18 inches deep in a pit of moist sand. In this way the seeds are neatly packaged for handling, and animals cannot dig them up. The sandy outwash along rivers and creeks, if not flooded, makes an excellent place to bury the screen containers. If a pit is dug in clay soil, provision should be made for drainage of excess rain water. The accompanying drawings illustrate the way to make and fill the screen containers easily and cheaply. The nuts and acorns should be left under-ground until late March. When removed, many of them will have cracked their shells or sprouted. Soon after being taken up, these tree seed should be put in a bucket of wet sawdust or moss and planted out.

Planting

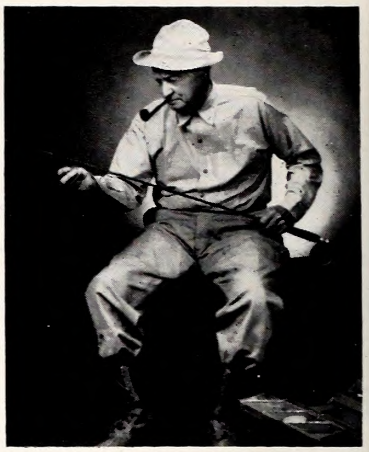
Good hardwoods need deep, fertile soils and protection from direct sun and drying exposure. Steep land having good soil, narrow creek bottoms, and odd patches of fertile ground not suitable for farming make good locations to seed your walnut and oak. Planting of openings in sparse stands to "sweeten up" the woods with high-quality trees is often successful. Do not plant walnut and oak on worn out, eroded old fields. In planting, the nut is placed about ½ inch deep in a small hole made with a stick or trowel, then covered and packed.

The young forest of hardwoods will begin to show in about three weeks, and the owner can take pride in his role as seed collector, nurseryman, tree planter, and plantation owner.



Leaders in Conservation:

Mister P. K.



By Rod Amundson
Chief, Education Division

This is another in a series of articles about the men to whom Tar Heel sportsmen and visitors from many states owe so much. They were pioneers in the field of wildlife conservation. This month WILDLIFE is proud to present another of these men, Mr. P. K. Gravely of Rocky Mount.

MR. P. K., as he is affectionately known to thousands, claims the ripe age of seventy, looks sixty, and can still set a pace much younger men find hard to follow. His blue-gray eyes are bright and keen. There is a spring in his step and he has the look of an outdoorsman, which he is.

Sixty-eight of Mr. P. K. Gravely's seventy years have been spent in North Carolina—except for thirty-three trips to Europe and an eighteen-month stint in the Orient. He was born in Franklin County, Virginia, June 20, 1888. Two years later his father, J. O. Gravely, moved the family to Rocky Mount where P. K. grew up and has lived ever since. There were no suitable public schools at the time, so he attended private schools, Randolph-Macon prep school at Fort Royal, Virginia, and Randolph Macon College at Ashland, and later took a degree of L.L.B. at the University of Virginia law school, went to summer school at U.N.C., and passed the North Carolina bar examination in the fall of 1912. He practiced law in Rocky Mount for a time with T. T Thorne, and later established a law firm with his brother Lee. When Lee became ill, P. K. practiced law alone until 1917 when he joined the U. S. Army in World War I. Most of his time was spent at Ft. Jackson, S. C., and he was in officers training school when he was discharged.

Not caring for law practice, P. K. joined his father's tobacco business, the China American Tobacco Company which his father founded. It was during the early years of the firm that P. K. made his many trips abroad.

When J. O. W. Gravely died in 1932, P. K. became president of the company, and is now chairman of the board of directors, being succeeded as president by J. O. W., Jr., who is now sixty-three.

"You might say I am semi-retired," P. K. said, "but I could never completely retire." That statement is borne out by his many activities. He hunts and fishes at every opportunity, maintaining a lodge near Duck and another on the Alligator River near Ft. Landing. In his back yard is a workshop where he rides a hobby of making solid hardwood furniture. His guns and fishing gear are stored in specially made cabinets, and P. K. owns one of the first spinning rods ever to come into the country. He brought it back from England many years before spinning caught on with American anglers.

Mr. Gravely's interest in conservation began when he visited an uncle in Virginia as a youngster. His uncle, a country doctor, taught him how to take fish with hook and line and with nets. There were no game rules in those days, but his uncle insisted that trout be taken only with hook and line, never with nets. People in the community were conservation minded, taking game only for food and trapping quail for restocking purposes as well as for food. No one was allowed to shoot quail except his uncle Dr. Ashford Keen. Despite the trapping, quail were well provided for, and there were coveys "every 200 yards." Only the fattest, plumpest birds were used for stocking or food; the others were destroyed to maintain a generally strong and healthy population.

Mr. P. K. has kept his keen interest in wildlife conservation throughout the years. He was the second president of the N. C. Wildlife Federation, succeeding the late Col. Page of Tryon. P. K. was one of the small group of men who organized the Federation, and served as its president during the two-year period when the 1947 Legislature separated the Fish and Game Division from the Board of Conservation and Development and created the North Carolina Wildlife Resources Commission.

Mr. P. K. sums things up this way: "Conservation today is ten times better than it was ten years ago. People are willing to pay their way. Wildlife protectors command respect, and in turn, respect the people they serve. The Wildlife Commission is like any other government agency—if they are forgotten they get into a rut. They are responsible to the hunters and fishermen, and the hunters and fishermen owe it to themselves and to the Commission to see that this responsibility is carried out."

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Fish Regulation Hearings Set

A series of three public hearings will be called by the Wildlife Resources Commission before setting up the 1959 fresh water fishing regulations to go into effect January 1. The Western North Carolina hearing will be at the Courthouse, Asheville, at 2:00 p.m. on October 8. For the Eastern section the hearing will be at the Courthouse in Washington at 11 a.m. October 22. For the Central section the hearing will be in the House of Representatives, Raleigh, at 9:00 a.m. on November 3. Persons interested in proposing changes or modifications are urged to attend the hearings.

Federation Annual Meeting Set for October 8-9

Turner Battle, Rocky Mount, president of the North Carolina Wildlife Federation, has reminded members of the federation of the annual meeting to be held at Hickory on October 8 and 9, and urged those not already having done so to make reservations at hotels or motor courts. See elsewhere in this issue for further information about this meeting.

Wildlife Commission Exhibit at State Fair Relocated

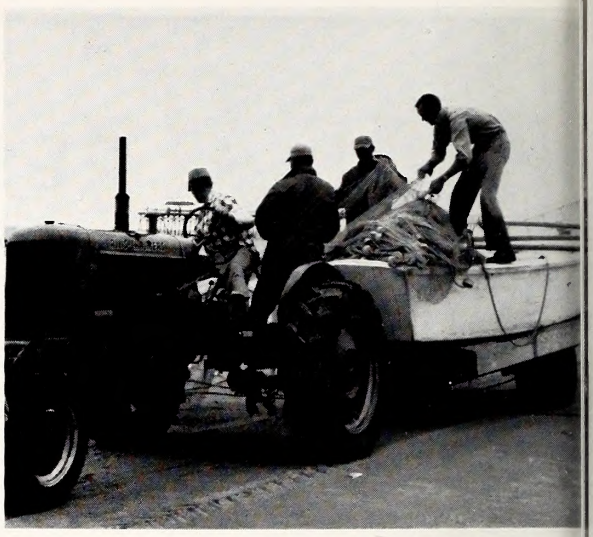
The Wildlife Resources Commission's exhibit at the 1958 state fair will be located in the Boat and Sports Show tent near the fairgrounds ponds instead of in the Fairgrounds Coliseum. Subscriptions to WILDLIFE may be purchased or renewed at the exhibit, and the exhibit will serve as an information center at the boat show.

Soil Conservation Society of America Meets in Asheville

More than 1,000 delegates and visitors are expected to attend the 13th annual conference of the SCSA in Ashville, October 19 - 22. Devoted to "The Science and Art of Good Land Use," the Society is a national organization with members from throughout North America. All persons interested in soil conservation are urged to attend. The N. C. chapter of the Society will serve as the host group, and the sessions will be held in the Asheville City Auditorium.

Managed Hunt Regulations Available

Complete regulations and schedules for hunting on North Carolina's wildlife management areas are available in booklet form, with information on both small game and big game hunts. Copies of the booklet are available from the Wildlife Resources Commission, Box 2919, Raleigh.



This Atlantic Beach haul netting crew uses equipm
suited for handling the thousands of pounds of mu

SILVER
from th

Photo Feature by Jim Lee

"IT takes ten good men to handle the net—but a Jeep or tractor is worth any five men." Arnold Justice turned and looked in the direction of Topsail Inlet. "Last year we brought in 17,000 pounds of mullet in one haul down the beach there, and in 1950 we got 20,000 pounds. That's the biggest haul I ever made in this state." Even at four cents a pound, that's a lot of mullet. Justice, 67-year-old fisherman and shrimper who has had a hand in haul netting for the last 52 years, went on to say, "You just about have to beg to get people to help these days—used to be they'd beg you just to get a mess of fish."

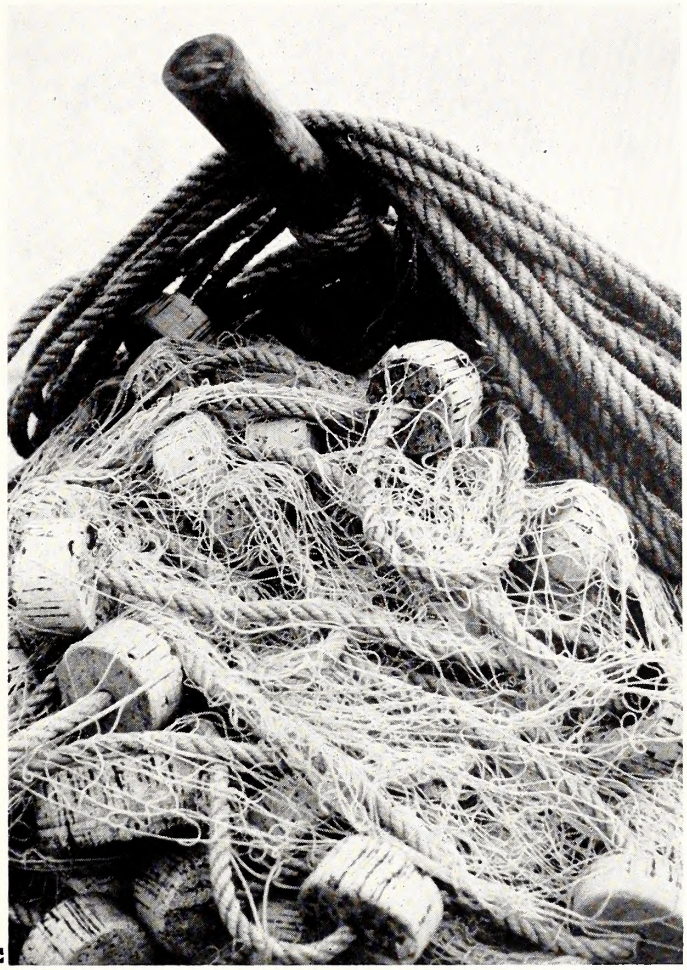
Haul netting for mullet along the Carolina coast has been going on for two hundred years or more. In mid-August the silvery and goggle-eyed fish stream down the shoreline in vast schools, jumping as they swim at a speed tiring to a man keeping up with them on foot. Following the smaller "August" mullet come the roe-filled mullet of the fall months, with the peak coming during the full moons of October and November. And fishermen, both commercial and amateur, take the huge nets out into the surf to harvest some of the passing horde.

Justice's favorite net was 225 yards long, with some 200 meshes across its 24-foot depth. Weighted heavily at the bottom with lead and bouyed up at the top with corks, it took a man-sized team to handle the huge seine. Justice said proudly, "I'm the man who held the lead line down." This net was lost during Hurricane Hazel, and since then he has fished on shares, with a partner supplying the net and Justice providing the jeep and dory.

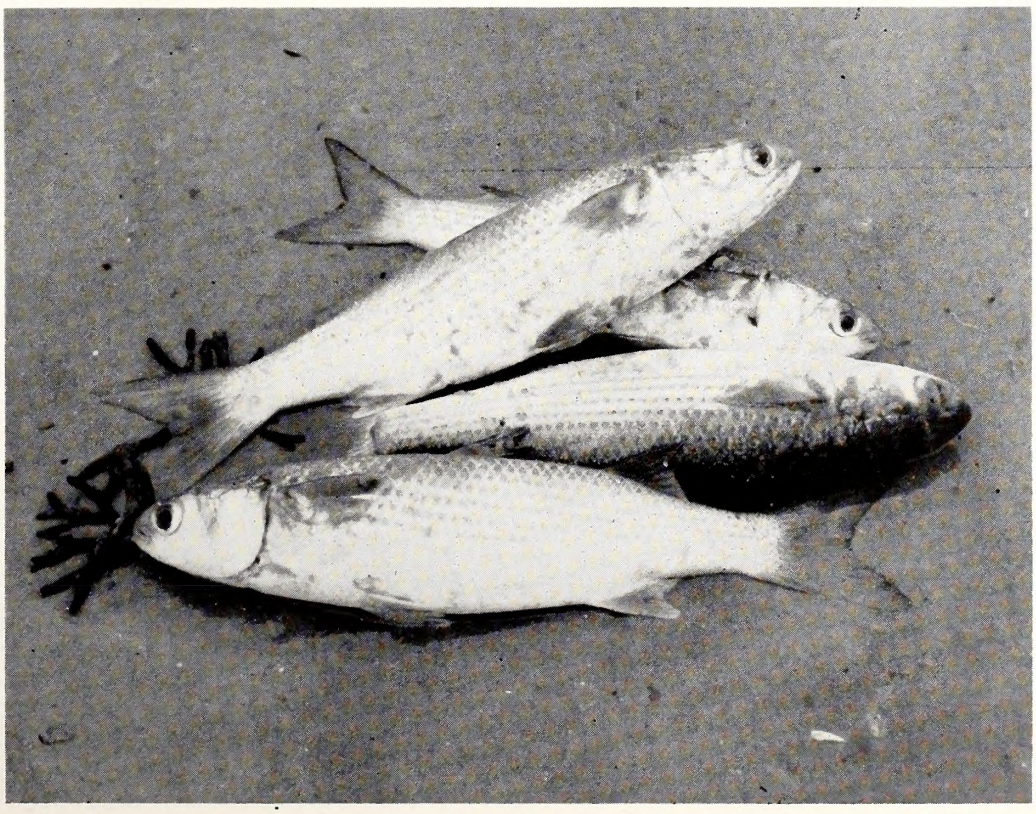
After the summer crowds leave the beaches following Labor Day, haul netters take advantage of the easy access to the surf provided by developed beaches. Late visitors to the coast are welcome to stand by and watch—and sometimes to help remove the fish from the net and in return receive a few tasty mullet for supper. Times have changed when outboard motors replace men straining at the oars, but the silver harvest from the sea continues.

Ready for action, the crew spreads out part of the net before launching the dory which is rowed out to encircle the mullet.

RVEST SEA



The net is a very important part of the operation of seining for mullet. The corks help keep one side of the net afloat.



Mullet have long been one of the most important commercial fish in North Carolina, having been a substantial part of the diet of many people when salted fish were necessary. Among the sport fishermen mullet rates high as cut bait, even in inland waters. Seines with wide meshes allow the young to pass through, thus harvesting only the adult fish suitable for food purposes.

Bre'r 'Coon's Troubles

By Ralph A. Bitely
District Game Biologist

THE Indians called him Ara-kun, the scientist named him *Procyon lotor*, but to those who hunt him, he is known as Bre'r 'Coon.

He is a very unpredictable fellow, for where he is wanted by the hunter, he is scarce and where he is not wanted, he is very plentiful,—even to the point of making a nuisance of himself by damaging valuable crops.

Generally speaking, the raccoon is not very plentiful in the western part of North Carolina, especially in some sections of the mountains. However, in the eastern section, particularly the coastal swamps, he has become a pest. The Wildlife Resources Commission has been attempting to remedy this situation by moving Mr. 'Coon. Since he is such a problem along the coast the Commission initiated a trapping program there in 1950. Licensed trappers in certain crop damage areas live-trap and furnish racoons for release in the western section of the state. Interested persons may purchase these racoons for $5.00 each and furnish transportation to the release site. The Wildlife Resources Commission then reimburses the club or group one-half of the purchase price.

This, however, is not the complete answer to increasing the raccoon population in the west. Over 3,500 raccoon have been stocked since 1954 but the population does not seem to have increased appreciably. Perhaps there is a deficiency in the raccoon habitat which can be remedied. We do not know whether such a deficiency might be food or cover or some other element, but it is obvious that the west is not naturally as productive of raccoons as the east.

In order to obtain possible solutions, we must first know the raccoon's habits and habitat requirements. Much has been done by various biologists and naturalists throughout the United States concerning the food habits of the raccoon. Wherever corn is grown, it constitutes a very large percentage of food eaten during the year. This seems to be true even where there is a plentiful supply of acorns and other nuts.

During the spring a large portion of the diet is composed of insects, crayfish, and animal remains, while the summer diet contains these foods plus a considerable quantity of fruits. This, of course, is understandable since wild berries are usually quite plentiful at this time of the year. During the autumn, corn seems to be the preferred food; it made up 82% of their diet in one area, even though

A truckload of raccoons is destined for release in western North Carolina. These were trapped in eastern areas where damage to farmers' crops made their removal desirable.

Photo by Margaret Fisler

there was an abundant supply of mast nearby. In areas where no corn is grown, acorns and other nuts are eaten in larger quantities. Small quantities of other materials are eaten throughout the year when available. Some of these trace foods are grass, leaves, seed, nuts, and snails.

Very little is known about the winter foods of the raccoon. However, since he is not a true hibernator, he must eat something occasionally. Obviously, he can eat only what is available. The heavy layer of fat that is developed during the fall furnishes some nourishment but other materials such as acorns, nuts, seeds, and animal remains are eaten in an attempt to allay his hunger. It is not known exactly how far he will travel for this winter food but probably it is a long way. The only alternative in many areas is to go hungry much of the winter. This would lead to malnutrition and lowered resistance to disease, especially for those raccoons that did not develop a large supply of fat. This, then, as with other animals, must be the critical time of the year.

Another possible reason for our small raccoon population may be the lack of den trees. However, it has been observed both in our own mountains and those in other states that wherever there are few den trees, the raccoons utilize natural crevices and holes in rock cliffs. The cliff dens seem to serve very well in some areas for they support a large population of 'coons. In fact, they seem to prefer the cliff dens in some areas even if there are plenty of den trees available.

Men and dogs seem to be the only important natural enemies of the raccoon. The effect of man upon the raccoon is, no doubt, very great during the hunting season but this is for only a few months each year. However, the effect of dogs upon the raccoon population is probably even greater. 'Coons are very susceptible to dogs, especially silent trailers, during late winter if they are in poor condition, and again during the spring and summer when the young are too small to defend themselves.

In retrospect, we can say that the raccoon will eat a wide variety of food, but depends upon only a few for his main sustenance. These are primarily vegetable matter such as fruits, nuts, and corn. Also, he requires a shelter of some sort. If there are not enough den trees, then he will utilize dens in cliffs. His main enemies are dogs and men, in that order.

With these basic facts in mind then, what can be done to improve his habitat? First of all, it is necessary that an adequate supply of food be available during each season of the year, especially winter. Creating openings and patch clear cutting in heavily forested areas is probably the most practical method of increasing spring, summer, and early fall foods. Various berries, grasses, and weeds will grow in the openings, furnishing not only fruit but also insects which are very important in the spring. By release cutting persimmon and mast trees, another group of foods is made available for the late fall and winter season. Since the mast crop is so irregular, an alternate source of late fall and winter food can be furnished by planting corn and chufa. Corn is especially preferred because it has such a high nutrient value.

Some of these practices have been in use on our refuges for some time. For instance, release cutting around mast and fruit trees has been carried on for several years because it serves several species of game; namely, squirrel, deer, bear, and raccoon. Chufa has also been planted, originally for wild turkeys, but raccoons also use such plantings. Also, a special feeding program has been conducted for newly released raccoon on our management areas. This is done by placing self-feeders, filled with corn, along the streams where the raccoons are released. This helps to hold the 'coons in the area until they become acclimated. In order to develop the program further, however, experimental transplanting of persimmon trees and wild grapes will be attempted this year.

As more information is gleaned from the research now in progress, it is expected that other practices will be discovered which can effectively be used to help increase the raccoon population in our mountains. Perhaps, in the future, the ridges and valleys will again echo to the baying of a pack of redbones and blueticks hot on Bre'r 'Coon's trail.

This self-feeder, loaded with ears of corn, was designed to be placed along streams where the 'coons are released in order to hold the 'coons near the release site until acclimated.

Photo by Ken Chiavetta

The smartly designed lodge stands in a grove of pines overlooking Lake Hickory where members enjoy excellent fishing.

The building reflects in the club's bass rearing pond which contains 20,000 fry scheduled for stocking in the county.

A DREAM COMES TRUE

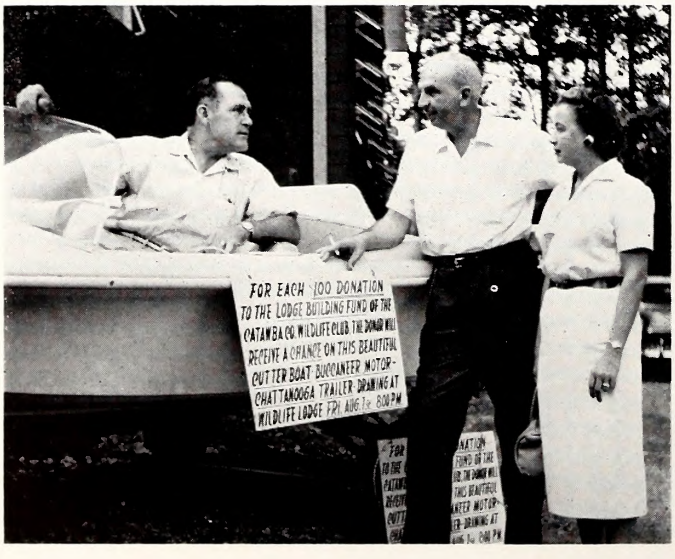
Catawba County Wildlife Club Dedicates New Lodge

Photos by Jack Dermid

THE first day of August marked an important milestone in the long and active history of the Catawba County Wildlife Club. Over 300 members and guests assembled on Lake Hickory for a fish fry and to dedicate their new Wildlife Club Lodge, a ceremony that the membership had been looking forward to for fifteen years.

Wildlife Commissioner James A. Connelly of Morganton,

Martin Keisler (left) explains fund-raising methods used by the club to Wildlife Commissioner and Mrs. James A. Connelly.



The lodge's meeting room held over 300 people during the dedication program. Truss-supported roof eliminates pillars.

who was principal speaker, praised the club for its outstanding accomplishment and for its valuable contributions to wildlife conservation in Catawba County and the State.

Located near Hickory on a pine-covered slope overlooking the beautiful lake, the lodge is undoubtedly one of the finest structures of its kind in the nation, a building of which every member can be justly proud. The modern, 48 x 60-foot cement block building is complete with a large meeting room, complete kitchen, rest rooms, directors' room, and a full basement, which when finished will contain a lounge and a caretaker's apartment.

Idle dreams did not make the lodge a reality. It took work, determination, $15,000, and more work. First, active committees had to be appointed. After a suitable 7-acre site was leased from the City of Hickory, plans were drawn and approved by club directors. And in March of 1957, ten club members armed with power saws and axes began clearing the building site and parking lot. Until the job was completed, members donated their time and effort unselfishly, even wielding picks and shovels to dig the lodge footings. A commercial firm was employed to do the actual construction, but work was carefully supervised by the building committee.

Although a considerable amount of material was donated by business firms in the Catawba County area, the club made an investment of $15,000 (plus furnishings). Fund raising did not prove to be an insurmountable problem. Club secretary Thomas W. Reese sums up the activities of the finance committee thusly: "The largest fund-raising drive was a "Century Banquet," with a new Cadillac being offered as the attendance prize. One hundred tickets were sold for $100 each, and the banquet was a sellout with an unfilled demand for more tickets. Chances at $1 each were also sold on a motorboat which was given away at the dedication ceremony. This project was also very successful. In addition, a continual campaign for donations was carried on which resulted in both money and building materials. Even more money was needed to build the lodge, and $5,000 was borrowed from a local bank so that construction could begin immediately rather than waiting for further donations. This proved to be a wise move, for the lodge is now a reality. Although the note is unpaid, the club plans to retire it through fund-raising projects each year until the balance is paid."

The Catawba County Wildlife Club will pay off their note, too, and at the same time, its members will work together furthering the cause of conservation and a better life in their community.

North Carolina Wildlife Federation To Meet in Hickory

THE Catawba County Wildlife Club will be host to the 1958 convention of the North Carolina Wildlife Federation on October 8 and 9. Sportsmen and Conservationists throughout the State are looking forward to the annual event and will descend upon Hickory by the hundreds to discuss conservation issues, initiate conservation programs, and to enjoy the hospitality of the host club and town.

A highlight of the meeting will be the annual banquet when the group will be addressed by Dr. Joe Linduska, nationally-known conservationist and wildlife biologist of Remington Farms, Chesterfield, Maryland. The banquet itself will be a long-remembered affair, an elaborate smorgasbord featuring over 90 different foods, such as specially prepared shrimp, baked salmon, and country ham. The Hickory Moose Lodge, famous for its smorgasbords throughout the nation, will serve the dinner.

Headquarters for the convention will be the Hickory Community Center, 701 First Street, Northwest. The program follows:

Wednesday, October 8

9:30 a.m. Registration
12:30 p.m. Directors and Officers Luncheon
2:00 p.m. Business Session
6:00 p.m. Fellowship Hour
7:15 p.m. Banquet

Thursday, October 9

9:00 a.m. Business Session
1:00 p.m. Fish Fry at Catawba County Wildlife Club Lodge and boat rides on Hickory

Recreational facilities of the Hickory Community Center will be open to guests, and exhibits of sporting goods and products of Catawba County will be displayed. A variety of favors will be received by all attending.

Motels and hotels in Hickory offer excellent accommodations, but reservations should be made immediately, and can be obtained by writing Thomas W. Reese, Secretary, Catawba County Wildlife Club, Box 47A, Hickory, stating the type of accommodation desired. Reese will have reservations made and confirmed.

Fish frys and suppers are held regularly by Catawba County Widlife Club. New lodge contains fully-equipped kitchen.

Fish were deep-fried in elaborate outdoor grill. Lakeshore picnic area offers enjoyment for members and their families.

Photo by Jack Dermid

SETTING SQUIRREL SEASONS

THE gray squirrel has the distinction of being one of the most abundant and sought after game animals in North Carolina. It occupies a variety of habitats, all of which contain hardwood trees. Hardwoods are preferred because of the nuts, berries, and fruits they produce. These various types of "fruits" which are collectively known as "mast" constitute a most important part of the squirrel's diet.

The gray squirrel is so common in most parts of North Carolina that its management is often controversial. To some people it is an important game animal; to others it is a pest; and to still others it is just another of the many animals that inhabit the great out-of-doors.

Due to its high sporting qualities, it has been designated a game animal and placed under the jurisdiction of the North Carolina Wildlife Resources Commission for protection and management. It is therefore the responsibility of the Commission to establish open seasons and bag limits that will allow a harvest of surplus animals, yet will insure adequate breeding stock to sustain the population at a desirable level from year to year.

In accomplishing this goal, several factors, most of which are of a biological nature, must be taken into consideration. The adult gray squirrel is capable of producing two litters of young annually. The normal litter size varies from 2 to 4 and averages about 3. Two distinct periods of litter production are evident. These occur in early spring (normally about March), and in mid-summer (usually in late July or early August). The gestation period is from 43 to 45 days. While most squirrels conform to this general reproductive pattern, litters have been reported for almost every month in the year. Weaning of young begins at about seven weeks of age and is usually completed by the time they reach the age of 10 to 12 weeks.

Thus it is evident from the basic biological facts concerning the gray squirrel that any open season, in order not to interfere with reproductive processes, must be held during the period following the weaning of the mid-summer litter and end at the onset of the breeding period that resuts in the production of the early spring litter.

Since North Carolina encompasses a large and diversified area in which growing seasons, habitat, and soil types vary, it is logical to assume that the peak period of birth varies somewhat from one region to another. This assumption was verified by the gray squirrel kill surveys conducted during the 1956 and 1957 hunting seasons. These surveys showed that a higher proportion of females were suckling young in southern and western Piedmont counties than in the mountains during the period October 1-14. Survey data for the subsequent two-week period (October 15-31) indicated the number of suckling females to be substantially reduced. A similar survey conducted on the Coastal Plain during the period October 15-31 revealed that many females were still suckling young. Here the number of nursing females was found to be considerably less after November 1. A special study being conducted at Umstead State Park showed that about 90 per cent of the mid-summer litters are weaned and feeding on their own by October 22.

To summarize: These observations indicate that most of young squirrels born during mid-summer become weaned in the Mountains and upper Piedmont areas between October 1 and 15, and in the remainder of the state between October 15 and November 1.

Squirrel seasons and bag limits must protect the breeding stock yet allow a maximum harvest of the highly prized game animal.

By Donald J. Hankla
Leader, Upland Game Restoration Project

A second important consideration in establishing open seasons and bag limits on the gray squirrel is the incidence of botfly larvae. These larvae, otherwise known as "warbles" or "wolves" make their way into the skin of the squirrel and remain there as parasites until early autumn when they emerge. Should an animal which contains warbles be killed, it is quite often considered unfit for food. Hence the incidence of warbles is of considerable concern, for it would be wasteful to have animals thrown away after they have been killed.

The statewide kill surveys showed that warble incidence declined about the same time as the summer squirrels were being weaned. During the period October 1-14, incidence of warbles in gray squirrels ranged from one to fifty per cent in certain Piedmont and Mountain counties. During the following 15-day period, incidence in the same counties declined to a point of insignificance. During the period October 15-31, the incidence of warbles ranged from 1 to 75 per cent in certain upper Coastal Plain counties, but was noted to be negligible in the same area after November 1. Thus it would appear that any season that is established late enough in the fall to circumvent the possibility of killing females that are suckling young would at the same time considerably reduce the chance of killing squirrels which contained warbles.

Of primary importance in establishing hunting regulations is the determination of the number of animals that can safely be taken by hunters with adequate assurance that a sufficient number will be left for breeding purposes. Extensive research in West Virginia revealed that between 60 and 75 per cent of the annual gray squirrel kill is made up of young of the season. Stated another way—60 to 75 per cent of the squirrels present last fall were replaced by young born this year. This is a very high population turn-over. Another facet of the same West Virginia study indicated that hunters seldom harvested more than 20 per cent of the total fall population. Thus the difference of 40 to 55 per cent between the 20 per cent harvested by hunters and the 60 to 75 per cent of the total population that are replaced annually is the per cent that is lost through natural mortality.

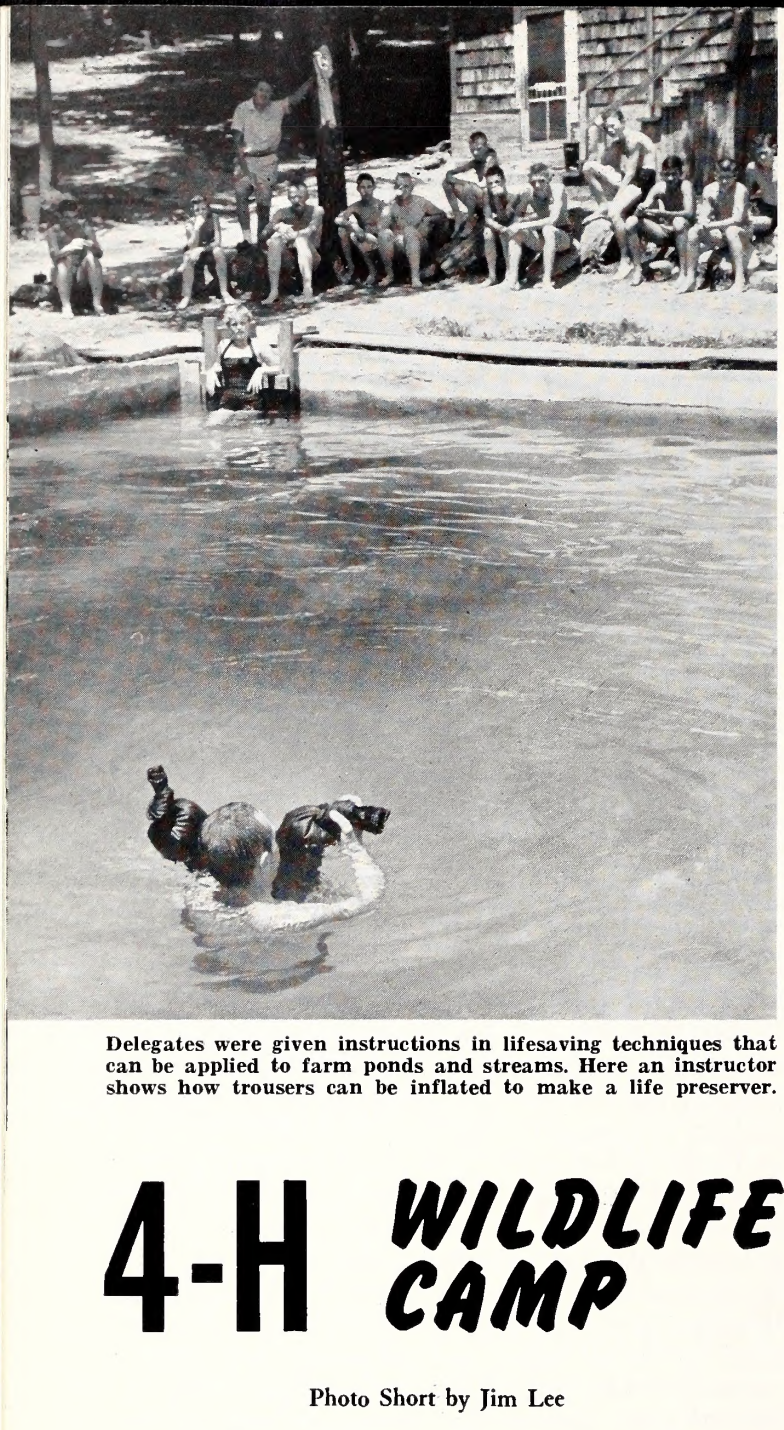
Photo by Jim Lee

This warble, or "wolf," was found in the skin of a squirrel killed by a car in mid-September. Such unsightly parasites cause many hunters to reject the squirrel as unfit for eating.

Often the question is asked "Why all the concern about establishing an open season that comes directly after the young of the summer litter have been weaned?" The answer is obvious. The huntable squirrel population is at its highest peak immediately following the weaning of the summer litter and hunters will have much greater opportunity for harvest at this time. Since there is a 60 to 75 per cent turn-over in the population each year, it is desirable to let the sportsman harvest as many as is practicable. Seldom is the "hunter-take" high, but in good years when food and hunting conditions are favorable it may reach 20 per cent.

More information of the type obtained from the annual gray squirrel kill survey is needed from every county in North Carolina. Such information is helpful in setting seasons which are as liberal as possible but at the same time attuned to the basic biology involved.

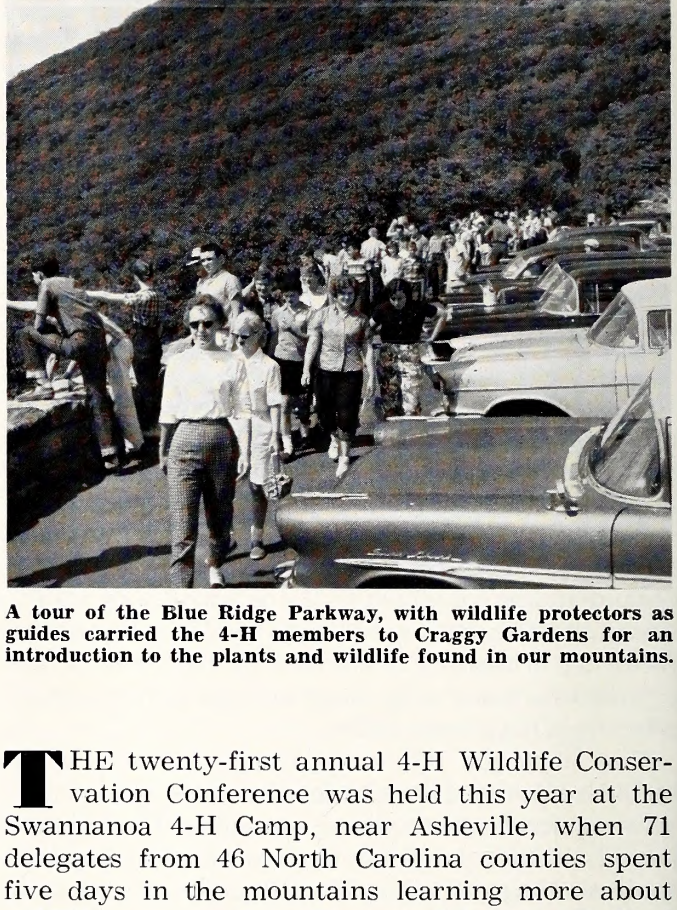
Gray squirrel kill surveys will again be conducted this fall. Should you wish to participate in these surveys contact your county game protector, game biologist, or the Raleigh office of the Wildlife Resources Commission. You will be provided with the necessary froms on which may be recorded a few simple observations about each squirrel that is bagged. Better yet, if you plan a party hunt, contact your district game biologist and he will arrange to meet you after the hunt to assist in recording the necessary forms on which may be recorded a few type will pay off in more sport for all—and you will have assisted in conducting management investigations designed to provide information used in establishing hunting regulations.



Delegates were given instructions in lifesaving techniques that can be applied to farm ponds and streams. Here an instructor shows how trousers can be inflated to make a life preserver.

4-H WILDLIFE CAMP

Photo Short by Jim Lee



A tour of the Blue Ridge Parkway, with wildlife protectors as guides carried the 4-H members to Craggy Gardens for an introduction to the plants and wildlife found in our mountains.

THE twenty-first annual 4-H Wildlife Conservation Conference was held this year at the Swannanoa 4-H Camp, near Asheville, when 71 delegates from 46 North Carolina counties spent five days in the mountains learning more about wildlife conservation. Sponsored by the Federal Cartridge Corporation, the conference was conducted by the N. C. Agricultural Extension Service in cooperation with the Wildlife Resources Commission. Highlighting the experience for the youngsters, each of whom completed a wildlife project to qualify for the camp, was a tour of Mt. Mitchell and an overnight camping trip along the Blue Ridge Parkway.

Cameras were clicking everywhere as the youngsters recorded scenes of their camp, including pictures of new-found friends who shared the five-day conservation conference with them.

With the vast Mt. Mitchell Wildlife Management Area spread beneath them, campers studied the panorama to be seen from the top of eastern North America's highest mountain peak.

HUNTING SCHOOL SCHEDULED

By Peggy Chears

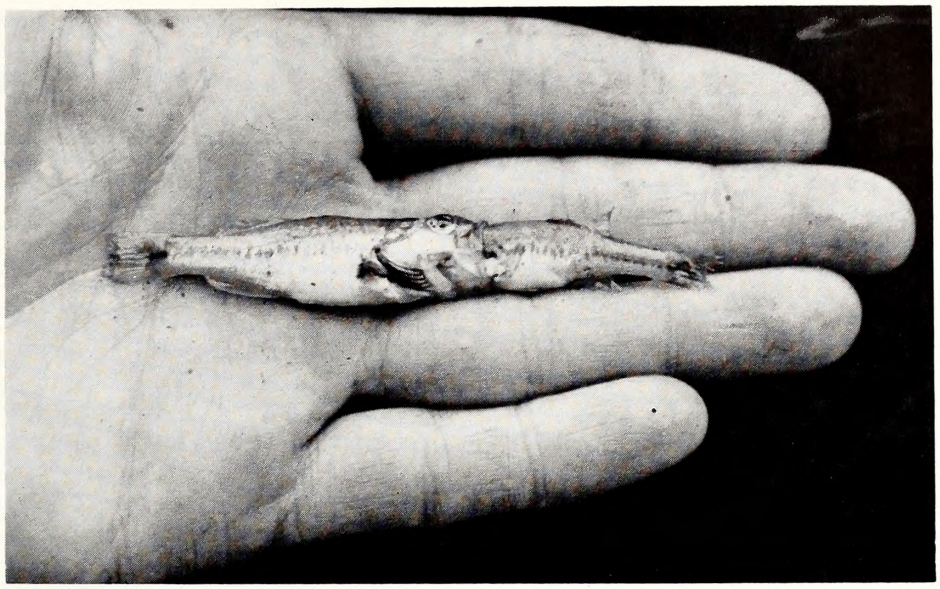
Polish up your gun; pack your outdoor clothes. The Extension Division of North Carolina State College and the college's Department of Wildlife Conservation are planning a Game Hunting Short Course.

This unusual educational program will be held Nov. 30—Dec. 5 at Southern Pines.

There hunters will find thousands of unspoiled acres of pine forest, swift streams, and gently rolling fields which offer dove, quail, pheasant, deer, fox, racoon, rabbit, and squirrel hunting.

Wildlife and conservation experts will join skilled hunters, marksmen, and guides to give students a week of education, pleasure and hunting in the Sandhills of North Carolina.

On the school's agenda will be lectures on guns, gun handling and safety, hunting techniques, and wildlife information. Target practice and skeet shooting will sharpen marksmanship.



The voracious appetite of a largemouth bass, found floating on Nantahala Lake. fry resulted in the death of these two Not so very unusual, fish biologists say.

The cost of the course will be $175.00. This package price covers room, board, instruction, guides, and dogs. The fee specifically covers one pheasant hunt and one quail hunt at private bird preserves. Also one deer hunt as well as other private and natural hunting available in the area.

Students furnish their own guns, ammunition, hunting licenses, and transportation to and from the outdoor sites, none of which is more than 15 to 30 minutes away.

Wives will be welcome—to attend the course or to simply enjoy a relaxing week in the Mid-South Resort. Wives will be charged only $5.00 daily (European Plan) or $12.00 (American Plan) in the room they share with husband.

PROTECTOR OF THE MONTH

Dennis E. Barkley

Wildlife Protector Dennis E. Barkley was born in Franklinton, North Carolina, on March 29, 1909. He graduated from Asheville Senior High School and attended North Carolina State College for one year. Prior to employment with the North Carolina Wildlife Resources Commission on March 1, 1952, Mr. Barkley worked with the U. S. Department of Agriculture at Sylva, North Carolina. He has attended two Wildlife Protectors' Training Schools at the Institute of Government in Chapel Hill, North Carolina.

Mr. Barkley is a member and officer of the Oriental Rotary Club, Chairman of the Oriental Boy Scout Troop Committee, and a member of the Oriental Methodist Church. He is married to the former Mary Sue Morrison of Asheville, North Carolina, and they have one son, Dick.

ENFORCEMENT RECORD FOR AUGUST

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other law enforcement agencies in the enforcement activities for the month of August, 1958.

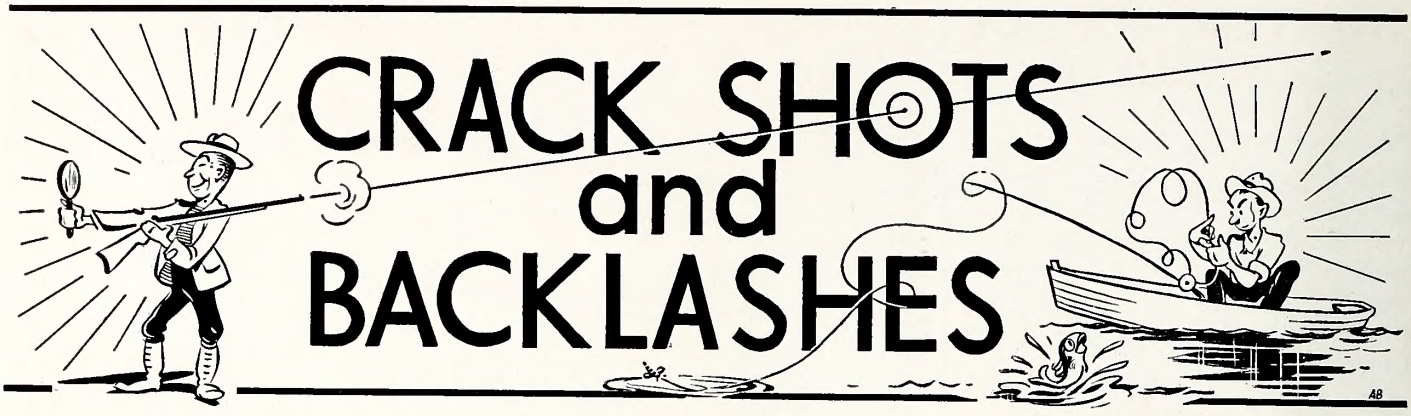
Persons checked	31,211
Total prosecutions	610
Total convictions	600
Total cases not guilty	4
Total cases nol prossed	6
Total fines collected	$2,764.95
Total costs collected	$4,742.26

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

Question: Is it a violation to use red worms or wigglers for bait in setting a trot line?

Answer: Within the framework of the regulations governing the taking of a fish with live bait, red worms and wigglers are considered live bait. Therefore, it is a violation to use this type of bait in setting a trot lines.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Editorial laziness, vacation, plus some snappy copy from Washington, D. C., turns this month's output over to Lou Clapper, writer for the National Wildlife Federation.

Ambition, when directed in proper channels, is a good and necessary thing. It is the motivating force which sets our way of life out ahead of those nations which are dominated by collectivistic doctrines and approaches. The desire of individuals to get ahead and "be someone" has resulted in most of the finest accomplishments of the age. Pride in organization has made the U. S. Marine Corps one of history's most rugged fighting groups.

To a considerable degree, professionals in the wildlife field are being denied the rights of legitimate ambition and pride of accomplishment. Potentially efficient administrators sometimes even reject advancement with the pertinent question: "Why should I become a Thanksgiving turkey?" What they mean is that advancement to positions of leadership or administration often results in necks being stretched on chopping blocks. This is not a healthy situation.

Thus far in 1958, for example, eight states have made changes in top wildlife administrative personnel, none of which were purely political of the type to be expected in some areas. Two replacements resulted from death and two others were due to retirement. Four directors "resigned," under pressure or of their own volition, or were "relieved."

Some changes, of course, are inevitable and necessary but too many point up the disagreeable fact that the chair of director or commissioner of game and fish is just about the hottest seat in the state government.

The life of a game and fish director is not an easy one and difficulties often extend to his staff subordinates who administer specific activities such as fish management, game management and law enforcement. All too often, wildlife agency administrators on both state and federal levels are pulled in several conflicting directions.

First off, the establishment and execution of policies are controversial. To cite an example, hunting regulations may run headlong into such issues as any-sex deer seasons, the fox-quail relationship or an open squirrel gunning period during the "mulberry season." Individual sportsmen, "experts" in their own eyes, usually have unvarying position on regulations which they expound vociferously. As a consequence, regulations often are compromises between biological realities and sportsmen's desires and these, in turn, may draw criticism.

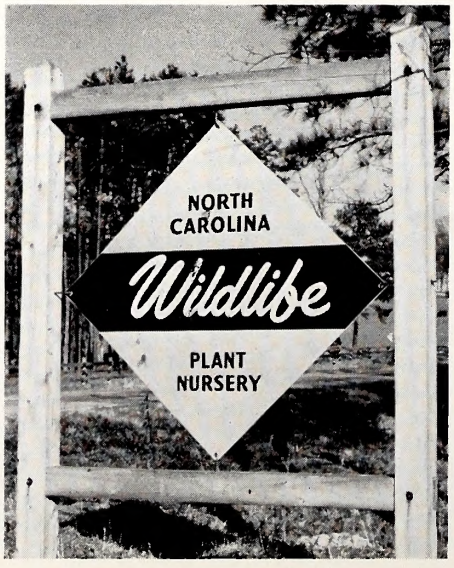
Secondly, politicians such as state legislators or congressmen or other influential people may have pet projects or theories which conflict with sound resource management or are not in the best general public interest. Since those making the demands often hold legislative purse strings or other controls, the maintenance of necessary cordial relationships without compromise of principle is a ticklish and nerve-wracking task, one sometimes viewed as hopeless.

Finally, there are other situations which may make an administrator's task nearly intolerable. Factions or cliques may exist in his growing commission, the hunters and fishermen he serves might be at odds among themselves. Troubles can develop in relationships with other governmental agencies. Internal difficulties, such as an enforcement officer-biologist conflict, could add woes and worry. In the end, the director or commissioner may wonder how he can do an efficient job, one in which he could have a pride of accomplishment.

This is the prospect which young, qualified and ambitious professional wildlifers see ahead. Since there are relatively few job

SIGN OF THE MONTH

The Commission's Wildlife Foods Nursery at Chapel Hill is producing record quantities of materials for food and cover.



opportunities for fish or wildlife biologists in private industry, the ambitious must seek top positions in state or federal agencies and attempt to stand the gaff or enter other fields of endeavor. Too many are choosing the latter course.

The man who can tight-rope his way along this chasm-bounded trail without emerging as a bloody, bowed and beaten individual is of top administrative caliber, the type private industry is likely to gobble up at double or treble his agency salary. Again, the cause of conservation may suffer in the end. As it is, many top men currently in the field are "staying-on" principally due to their intense dedication.

Those who use the natural resources and benefit most from the work of professionals should make their tasks as pleasant and rewarding as possible. They can be shielded from special interest groups, from internal rivalries and conflicts, in order to be permitted to do their jobs as efficiently as possible. Regulations ought to be recognized for what they are —tools of wildlife management— and so accepted. Salaries should be at least somewhat compatible with responsibilities. Positions of administration must be made attractive enough to interest and attract potential, qualified successors if the wildlife conservation program is to have the necessary continuity of direction.—L.S.C.

Tarheel hunters looking for places to hunt will do well to respect signs that landowners place on their property. A welcome sight is the "Hunting by Permission Only" signs the Wildlife Commission distributes to cooperating farmers and landowners.

Dear Sirs:

Subject: THE GREAT SPORT OF FISHING VERSUS THE SPORT OF WATER SKIING ON TVA LAKES AND OTHERS.

For brevity I establish the subject of this letter. Gentlemen, with idea of numerous fishing licenses sold in this great state along with sideline expenditures every fisherman makes, none can deny that this is "big business," right?

It is humbly requested, after listening to many, many fishermen "fuss," that some means be found whereby an agreeable compromise could be had between advocates of these two sports so that each could benefit happily.

It seems to me, with my limited knowledge of the subject, that on TVA lakes especially, the Coast Guard people, TVA people, and you wildlife people working together could help serious problem of this nature to proper solution before serious consequences might occur from present situation.

Have you ever tried controlling a little five HP fishing motor about to be swamped with near miss from fifty Horse Power job? Try it someday!

Would it be possible to "restrict" certain areas to the skiing sport on these lakes? Then we fishermen would know where to stay away from!

Sincerely yours,
J. N. Hill, Jr., Murphy, N. C.

SLOW DOWN THE SANDS! . . . . . .

Every second your watch ticks, a little life ticks away with it. Gruesome thought? Not at all. Just time to reflect on the fact that the sands of time can be slowed. Medical science has proved it. Too few of us slow down long enough to believe it.

ONCE there was a kid with a bent pin, fishin'. Now there is a bent man, workin'. Why will a busy doctor, even the president of the United States, hold off important appointments to talk fishing? Even talking about it brings a temporary relief from tension.

That very doctor who advises you to go fishing is too busy to heed his own advice. The sands run rapidly for him. Man has invented drugs to keep you awake, put you to sleep, pep you up, deaden your pain. But as yet, no man has devised a drug that will wash away the rust of wear, wipe clean the cobwebs of fatigue, or erase the ravages of pressure living. Mother Nature has a corner on that market, and her heart is as big as the outdoors—she gives it to you freely. She cleans waters for you with air and sunshine, replenishes them with fish, grows tall the trees around them, and holds out to you the balm of God's great green cathedral—the wonderful outdoors.

Resolve this year to take a boy fishin'—you! And a gal . . . . your wife! Kids, bless 'em, can find play in a hundred ways. It's adults who are dying sooner for lack of it. Slow down the sands, go fishin'. There's fun, peace—and life in it!

Become a part of it, it's a moving, improving scene, and you'll enjoy every health-giving minute of it!

The man who is deaf to the rainbow's call—That man has never lived at all.

(FROM "ALL OUTDOORS" with Phil Ellis—WPTF—RALEIGH, N. C.)

"Dear Sir:

"Please settle an argument. I have been told that if I pay taxes on land in North Carolina I am eligible to hunt in that state using a resident license even though I live in Virginia. I have been unable to find any information to either prove or disprove this condition. Can you give me a law or court decision as to the correct answer to this question?

"Thank you.

H. C. Lawrence
Hampton, Virginia

North Carolina has two exemptions or exceptions regarding nonresident licenses. Nonresidents who own 100 or more acres of land in the state may hunt on that land

without a license. Persons owning less than 100 acres within the state may purchase a special nonresident license costing $5.25 to hunt on their own land. Nothing in the game code provides for nonresident landowners to hunt on a state resident hunting license. Hope this settles the arguement.

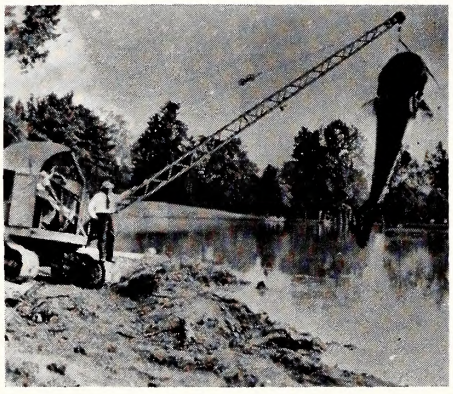
—Ed.

"Dear Sir:

"I do not know anything about the supposed ton catfish referred to in last issue in letter from Mr. U. A. Storm of Belmont, California.

"Enclosed is a picture of a catch Mr. W. Bernard Moore of Wadesboro made recently in his nearby pond.

Yours very truly,
W. C. Hardison
Wadesboro, N. C."



A new national directory of shooting preserves open to the public is available free by writing the Sportsman's Service Bureau, 250 E. 43rd St., New York 17.

The directory lists shooting preserves in 38 states where preserves are legal and now operating. The names and addresses, phone numbers, type of game handled, nonresident license fees and other data is included in the brochure.

This is the third year the Bureau has printed a directory in an attempt to help sportsmen find more places to hunt. There are shooting preserves near a majority of the population centers of the nation today.

The preserves offer a great deal of convenience, especially to city hunters who have difficulty in finding open land on which to hunt. The preserves provide dogs, guides, transportation through the shooting area, a place for the hunters to change clothes, and other services such as dressing game birds.

Some of the preserves have also added fishing to give year around recreation to sportsmen. And some preserves offer attractive package deals which include board and lodging.

Shooting preserves are definitely helping to provide more recreational opportunities, says the Bureau. Hunters have found that preserves offer a great variety of hunting for pheasants, bobwhite quail, chukar partridge, mallards and Coturnix quail.

All of the preserves have folders or brochures which they gladly furnish free. Hunters should write several operators as services and prices vary widely.

"Dear Sir:

"I would like to express a feeling that is probably shared by many other deer hunters. To begin with, the manner in which permits are issued for deer hunts on N. C. Wildlife Reservations would not allow a salaried employee, like myself, to participate. One does not leave his employment to wait in line for two or three days hoping to be one of the limited number to enter a reservation.

"Why doesn't the state date the permits, then upon receiving a dated permit one could make his arrangements accordingly. It seems to me a 25¢ date stamp would certainly give a greater number of people an opportunity to hunt deer on our reservations.

"I believe this would accomplish a number of things, and number one being safety. The reason, many people own small tracts of land near the reservations especially for deer hunting. Take several hundred of these land owners and their guests trying to make their way through two or three hunded cars of hunters, all trying to be among the first in line for a hunt. Add to this people going to and from work, plus travelers. You can readily see the hazardous traffic condition this provokes. Another sight seen along the parked cars are proud hunters displaying a new rifle to admiring friends and others cleaning and readjusting high powered artillery. With this, and the crowded traffic conditions, I don't believe we would win a safety award.

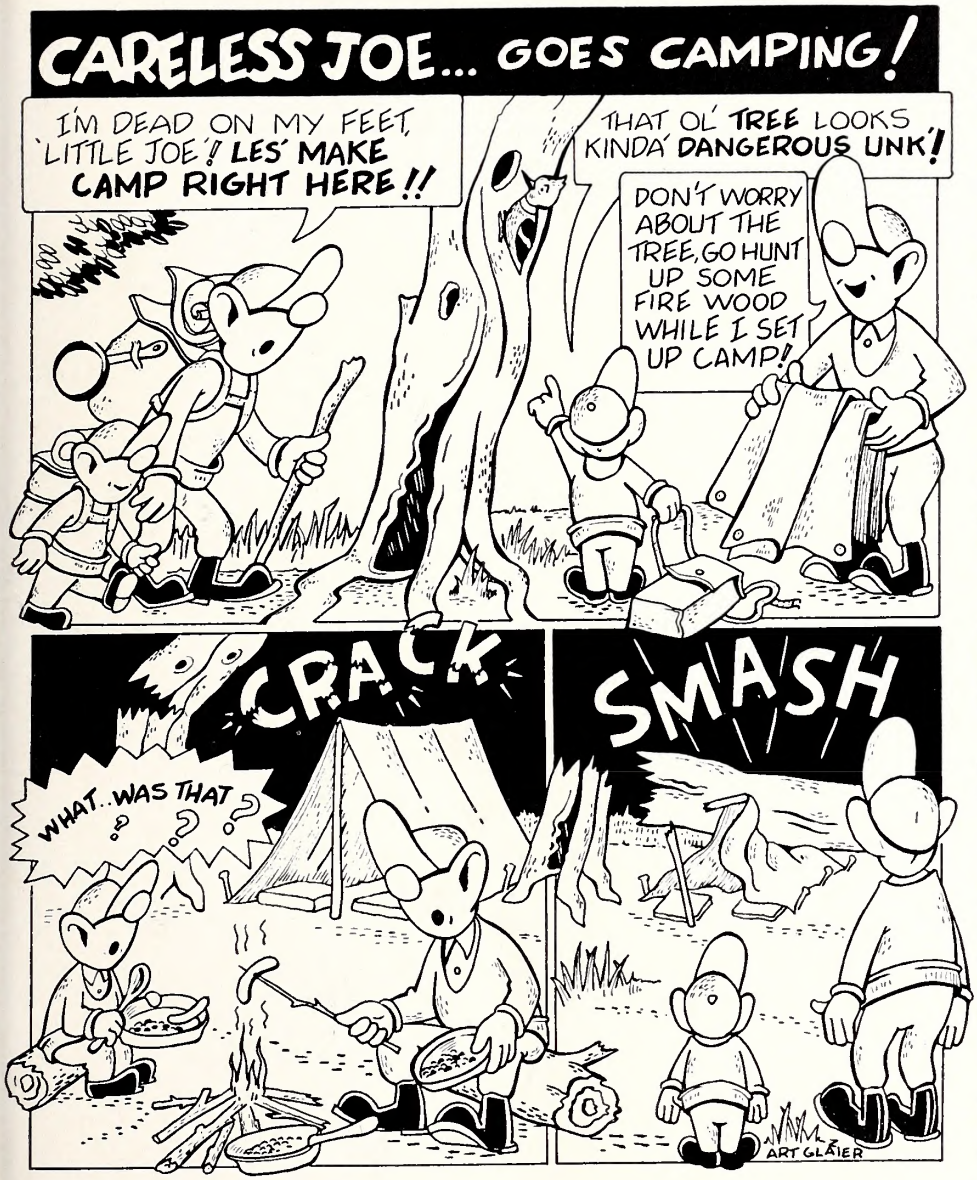
"This is the situation we face now, perhaps the 25¢ stamp will be the eliminator. I sincerely hope this suggestion will start the wheel rolling with those who are empowered to do something about it, and possibly an even better solution than this.

Yours very truly,
Pete Cralidis,
Winston-Salem, N. C."

Dear Mr. Cralidis:

Your letter of June 21 regarding check-in procedure and safety on management area hunts has been referred to me for reply.

During the deer hunts at Uwharrie last year, hunters frequently placed their cars in line at the checking station the day before hunting. Commission personnel recorded each license number, and then checked the hunters in on a strict first-come-first-served basis. This scene will soon be repeated at many wildlife management areas as the hunting seasons open.



We appreciate very much your concern of this matter since it is one of our most important problems. The problem is not peculiar to our management areas—it is universal: Everybody wants to be the first in the woods on opening day.

This problem as we see it is much larger than can be controlled by a 25 cent date stamp. We have spent literally thousands of dollars in developing safety measures and expediting hunter check-in at the checking stations. Some of the things we have done along these lines are as follows:

1. Application in advance is required for areas and dates subjected to especially high pressure, such as the opening day or days at Pisgah, Uwharrie, and parts of Mt. Mitchell and Daniel Boone.

2. New areas have been established, stocked, and opened wherever possible to create more hunting opportunity and dissipate the pressure at hot spots. (Flat Top, Thurmond Chatham, Holly Shelter, and Sandhills are areas opened during the past few years, South Mountains is scheduled to open this year, and others in the future.)

3. Safety regulations in regard to general conduct and use of firearms have been established to safeguard participants and to weed out dangerous and irresponsible characters.

4. Check-in procedures have been and are being further streamlined and unified to expedite getting the hunter into the woods with a minimum of delay but yet properly equipped and properly informed as to regulations.

5. Areas with especially high pressure opening days are opened with a half-day of hunting in order to encourage hunters to go to other areas which are just as productive but not as well known. Such areas do not require waiting in line more than an hour or two.

6. We have published frequently the fact that late season hunting is just as productive per man-hour of hunting as the opening day—and much safer.

7. On the one area where people apparently insist on parking in line the day before the hunt we have made provision for registering those who wish to hunt from that car without requiring that all such persons register in advance in person.

8. We have considerably increased our personnel on the managed hunts to maintain such order as is possible among the highly enthusiastic crowds of our hunting fraternity.

9. We have encouraged safety in poster campaigns, movies, and every other means at our disposal.

We realize that this problem is one which will never be completely solved. Hunting is a dangerous sport and those who participate in it should realize that they are taking certain risks when they enter the field. We can educate, appeal, encourage and prosecute, but as the old mountaineer said, "There just ain't no substitute for brains."

Our management area program may not be perfect but we do feel that we may take some pride in the fact that in the hundreds of thousands of man-days of hunting over a period of more than 20 years there has been only one fatality due to carelessness with firearms.

With the earnest cooperation of hunters like yourself, Mr. Cralidis, we hope to maintain this record.

Very truly yours,
Frank B. Barick, Chief
Game Division

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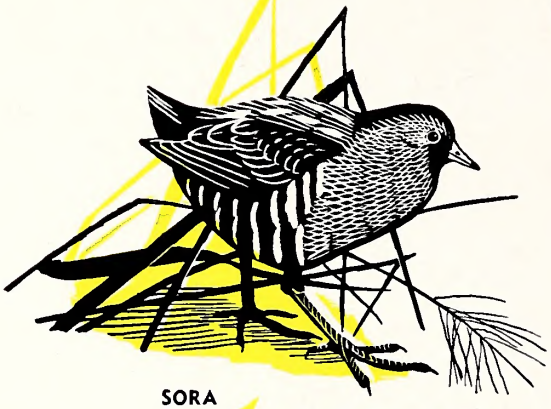
RAILS



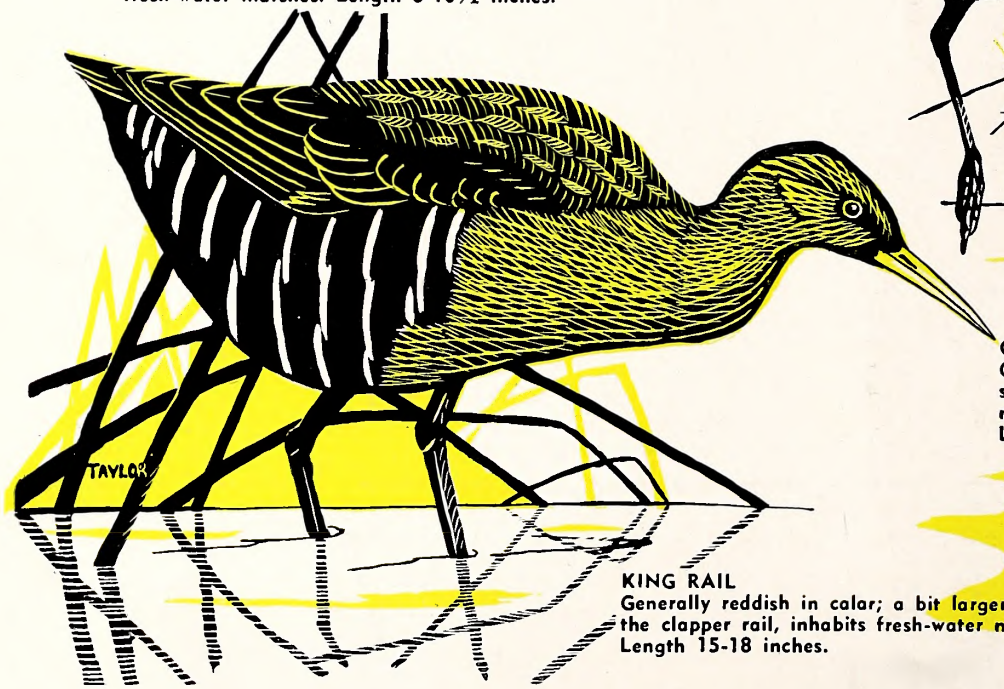
SORA
Smaller than quail. Grayish with short yellaw bill. Likes wild rice marshes. Length 8-9¾ inches.

YELLOW RAIL
White wing patch, small stubby bill. Likes law grassy marshes. Length 6-7½ inches.

BLACK RAIL
Faund in law wet meadaws and salt marsh. Very small, length 5-6 inches.

VIRGINIA RAIL
Abaut the size af quail. Lang bill. Faund mainly in fresh-water marshes. Length 8-10½ inches.

CLAPPER RAIL
Generally grayish. Almast twice the size af a quail. Inhabits salt marshes, knawn as salt-water marsh hen. Length 14-16 inches.



KING RAIL
Generally reddish in calar; a bit larger than the clapper rail, inhabits fresh-water marshes. Length 15-18 inches.

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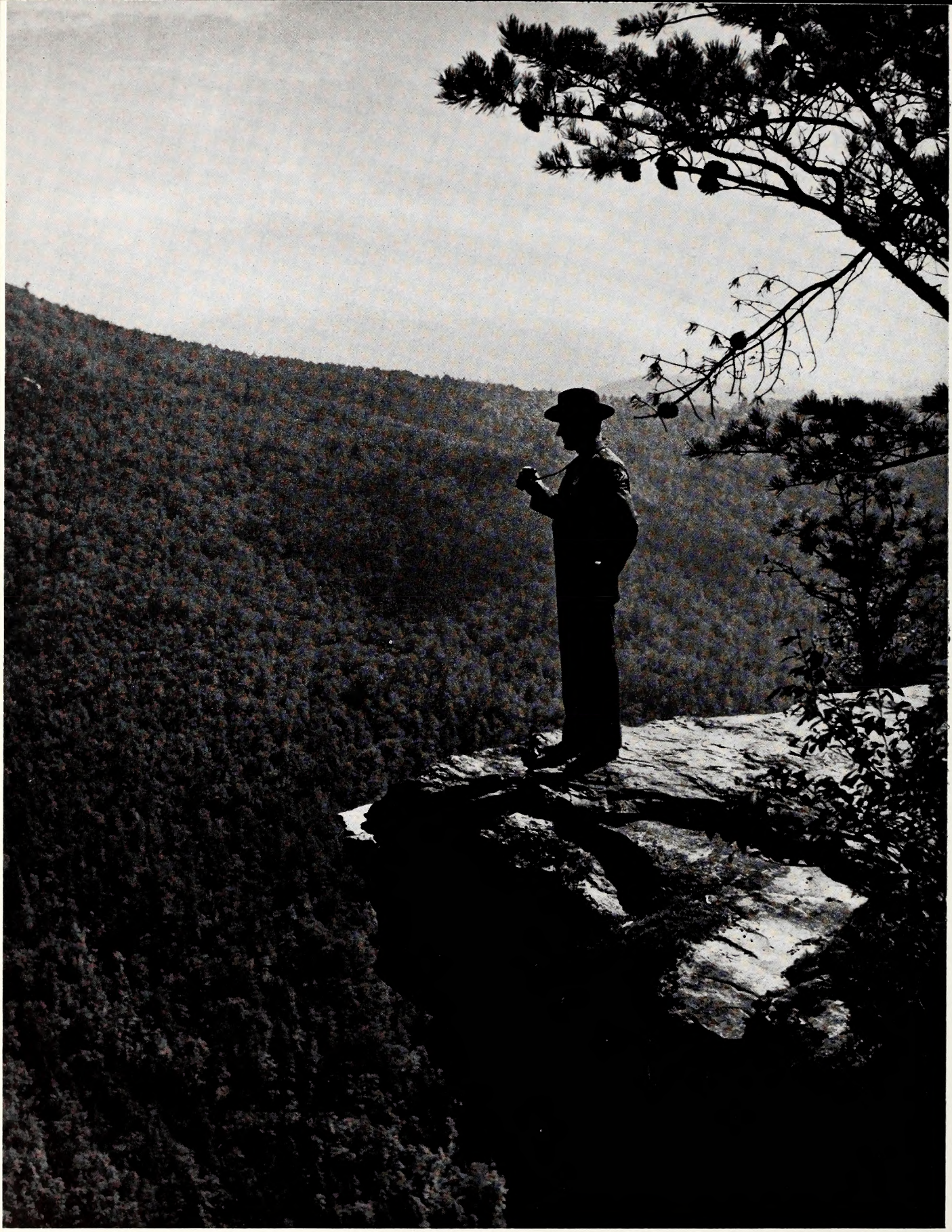

Photo by Jack Dermid

Wildlife Guardians

From the wind-swept dunes of the Outer Banks to the mountain heights, your wildlife protectors are always on the job—in all kinds of weather and at all times of day—to safeguard North Carolina's fish and game for the enjoyment of all people and to lend a helping hand to sportsmen in need. Shown on an overlook in a wild section of Burke County is Protector Robin Rhyne, a member of the 140-man Protection Division team.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

Although we usually try to maintain a certain amount of dignity on our covers, we believe that an occasional bit of humor lends spice to the pudding. The artist is Clay McGaughy of San Antonio, Texas. In submitting the painting, McGaughy said, "Though a variety of animals might have been used in this idea, the 'coons seemed more 'humanizationable' than other tree-climbing varmints. Also, 'coons, like dogs, are sort of inherently comical, I think." The editors of WILDLIFE agree, and we hope that our readers will get a little chuckle out of the picture too.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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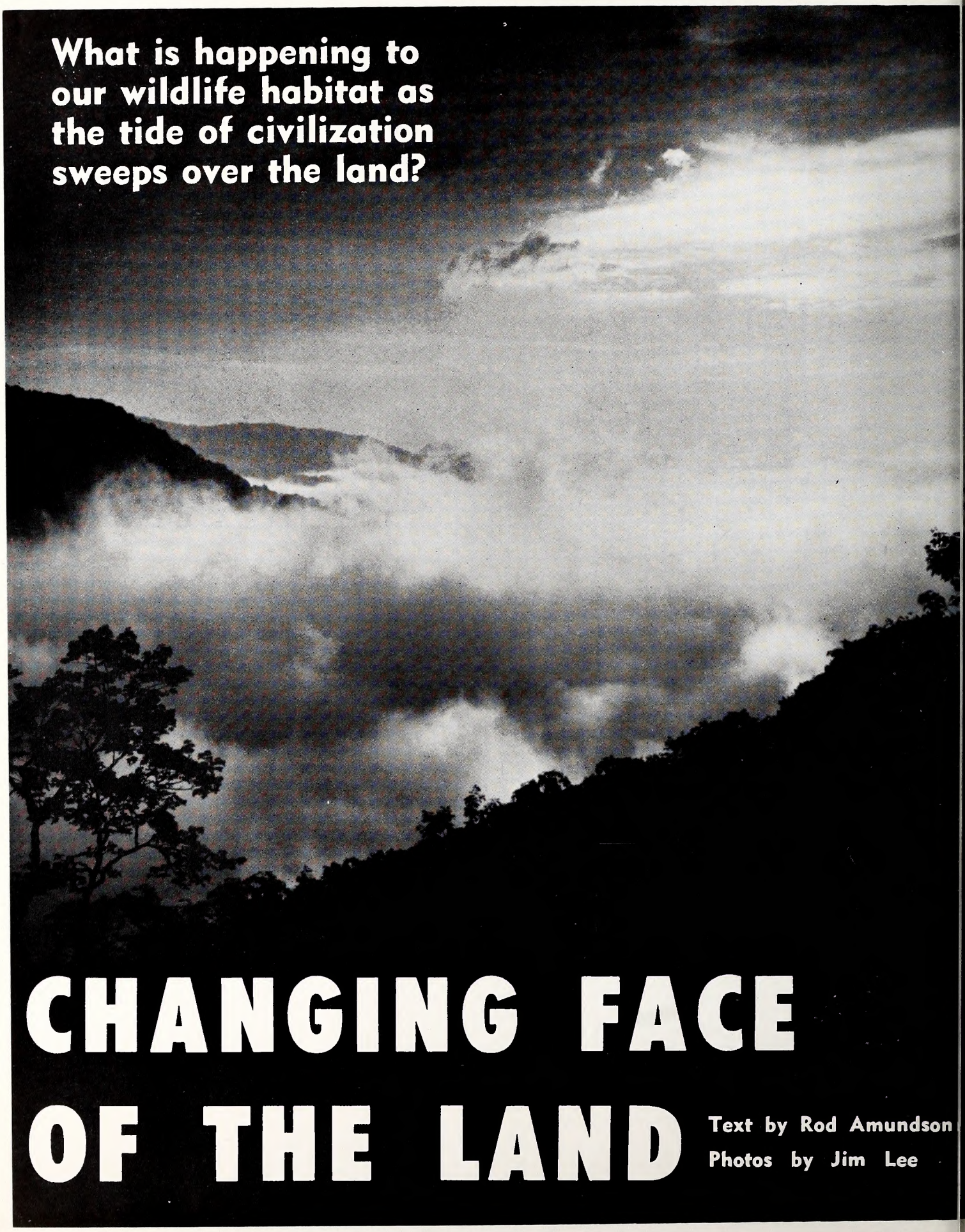


CHANGING FACE OF THE LAND

Text by Rod Amundson
Photos by Jim Lee

IF you fly across North Carolina on a clear day, you will come to the conclusion that it is a big state—a lot of land. North Carolina is largely an agricultural state, with thousands of farms and vast areas of woodland. Fly across the state at night and you will get a different picture. From a mile high you will see literally hundreds of cities and towns at one time, sparkling in the night like jewels. In the Piedmont especially, you get the impression that our state is rapidly becoming a metropolitan area—industrial and progressive.

Progress is a wonderful thing. Without progress we would be going backward into extinction. No one would want to stand in the way of progress and development—but progress is making things increasingly tough for our wildlife and for the hunters and for the men who are charged with the responsibility of providing game for the hunter's bag.

Game is plentiful in North Carolina where game is to be found, but the amount of land remaining to produce game is shrinking constantly and rapidly. Back in the days of the Dust Bowl and at the time of the beginning of the Soil Conservation Service, we heard startling statistics on how many farms were being blown or eroded away . . . how many farms were washed down the Mississippi River each day. Shocking as these statistics were, they were facts. Here is something even more startling: *more fertile land is being lost each day throughout the country to suburban and metropolitan development than was lost twenty years ago by erosion!*

Within a decade the entire eastern coast of the United States from Maine to Florida will be classified as metropolitan from the point of view of both sociological development and civil defense.

North Carolina has a total of 3,537 cities and towns ranging in size from Jones Crossroads to Charlotte. These cities and towns are expanding rapidly. Each housing development, each putt-putt golf course, park, swimming pool, drive-in restaurant, racetrack or ball park takes more land from the production of crops and game.

Add to this list more than 70,000 miles of roads, many of which are dual lane highways. Here game is killed by cars, not produced. Further, there are

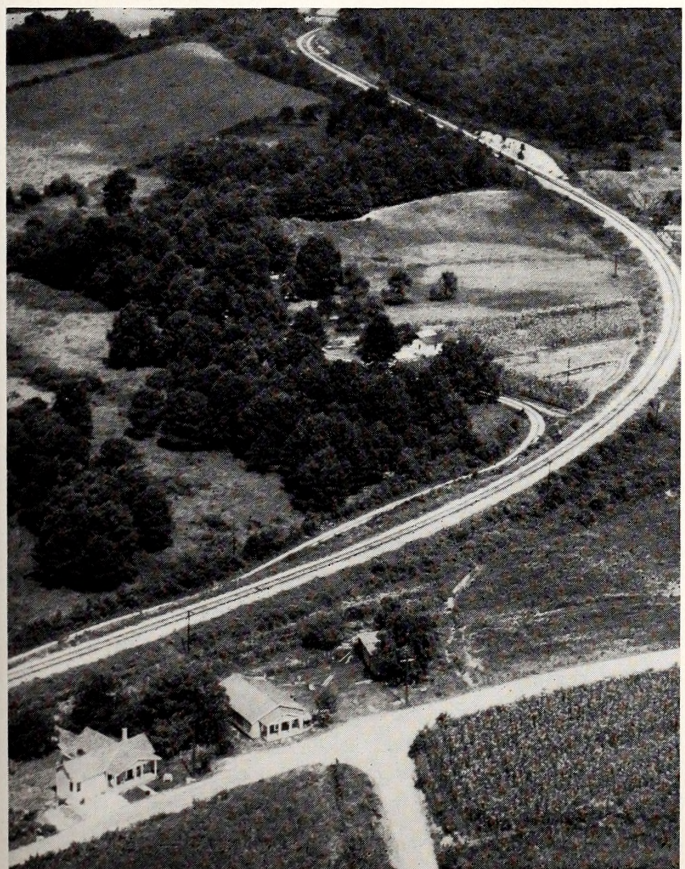
North Carolina's modern interstate highways and vital farm-to-market roads speed people and products to the places they go—but these roads use many acres of land. Beside the highways are homes, stores, gas stations, and many other establishments that occupy land once available to wildlife.

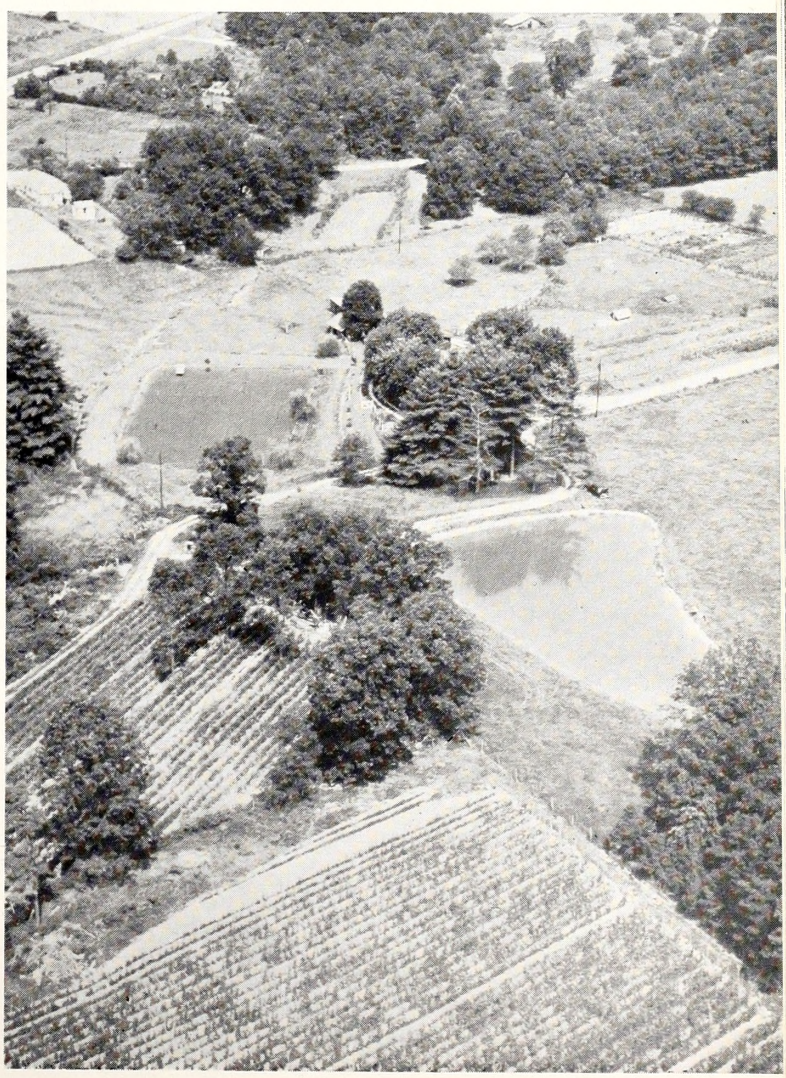
4,514 miles of railroads. Compute the number of acres taken up by roads, railroads, and towns—you will see that agriculture and wildlife are on the losing end.

Along with industrial and municipal development is a rapidly growing population. And the shrinking work week gives more leisure time to this expanding population each year. Leisure time means more time for hunting, more hunters, less and less area on which to hunt.

All this puts an increasingly heavier load on the men who protect and manage our wild game. If we are to continue to have hunting as we now know it —long seasons and liberal bag limits—we must concentrate on making our remaining land produce game to its fullest capacity. It will be a difficult task, requiring the combined efforts and thinking of everyone who is interested in taking to the woods and fields for game. Wildlife, and the sport that it produces cannot stand in the way of progress —but with foresight and cooperation, there will be a place for wildlife in the future.

Part of the changing picture of our countryside is the new construction of lakes and farm ponds. Above, a mountain lake provides recreation such as fishing and boating for many near-by families. Below right, farm ponds built for irrigation and the booming pasture improvement program also provide fishing and even waterfowl hunting on small tracts. These intensive uses of land for practices that benefit wildlife help in part to make up for the ever-increasing loss of land to other uses such as the power lines and railroad rights-of-way as below.





QUAIL WINGS

AND THE STORY

THEY TELL

Jack Dermid

State College wildlife student Andy Weber is shown with a portion of the 2,463 quail wings which he analyzed to determine the age composition of the quail population and the percentage of "squealers" in hunters' bags. The survey will be conducted again this year, and hunters are urged to cooperate if they receive quail wing-return envelopes through the mail.

By T. Stuart Critcher
Federal Aid Coordinator, Game Division

THANKSGIVING Day in North Carolina marks the traditional opening of the bobwhite quail season. Early during this season, which starts this year on November 27, a few of the birds in the hunters' bag may be "squealers"—birds considerably less than 90 days old.

In the fall of 1957 the Wildlife Resources Commission initiated a study of the bobwhite quail to obtain more information on the age composition of the population and on the proportion of "squealers" in hunters' bags. Careful planning and a review of similar studies conducted by other state wildlife agencies indicated that the needed information could be obtained from an examination of quail wings.

In order to obtain enough quail wings for an adequate survey, postage-free envelopes were sent to known quail hunters throughout the state. Instructions on the envelopes requested that the hunters remove the right wings of all quail killed, place the wings in the envelope, fill in the date and location of the kill, and send the wings to the Wildlife Commission.

In all, 2,463 wings with determinable characteristics were analyzed in this study. The aging techniques employed make use of certain distinguishing characteristis of the primary wing feathers and the primary coverts in separating adults from juveniles. Young-of-the-year are recognizable by whitish or buff-colored tips on the primary coverts, and by pointed primaries. Adult quail have primary coverts which are a uniform slate gray in color; the primaries too, are uniform in color and have rounded tips.

Using these characteristics, wings were divided into three groups: adults, juveniles which were 150 days or older, and juveniles which were less than 150 days of age. This last group could be accurately aged by careful examination of the moult sequence and length of the primary feathers. Juveniles which are older than 150 days cannot be aged in days as the distinguishing primaries have become full size by this time.

The wings received were taken from quail that had been killed between November 28 and December 31. By using the methods described above, the exact age of those wings which were taken from quail less than 150 days of age was determined as of the day the bird was killed. In turn, these wings were back-dated to November 28. This procedure was used in order to determine the age composition of the quail population on the opening day of the hunting season. These same wings were also back-dated to November 15 and November 1.

Young quail which are not fully feathered and which are not capable of strong flight are commonly termed "squealers." In this study the dividing line between full-grown birds and undersized birds was established at 90 days. At 90 days of age quail are fully feathered, are capable of strong flight, and cannot be distinguished from adults except by care-

ful measurement. Actually, squealers are considerably younger than 90 days. The 90-day dividing line, therefore, allows a rather wide "safety" margin against the inclusion of squealers.

The following table shows the number and percentage of quail less than 90 days of age on three dates, as determined from the total sample of 2,463 wings.

PROPORTION OF QUAIL LESS THAN 90 DAYS OLD ON THANKSGIVING DAY AND EARLIER DATES

DATE	PIEDMONT (839 birds)		COASTAL PLAIN (1,624 birds)		STATEWIDE (2,463 birds)	
	Number	Percent	Number	Percent	Number	Percent
Nov. 28	1	0.1	16	1.0	17	0.7
Nov. 15	19	2.3	52	3.2	71	2.9
Nov. 1	64	7.6	145	9.0	209	8.5

The above data indicate that on November 28, 1957, only a fraction of one percent of the bag was composed of quail less than 90 days old, and that on November 15 less than three birds in 100 were less than 90 days old. Had the sample been taken as early as November 1, between eight and nine percent of the bag would have been less than 90 days of age. This last figure, averaging 8.5 birds per hundred statewide, is considerably below the 20 percent limit of acceptability set by some states.

Of the total sample of 839 wings from 27 Piedmont counties, 632 or 75.2 percent were juveniles or young-of-the-year quail hatched during the summer of 1957. The sample of 1,624 wings from 38 Coastal Plain counties contained 1,162 juveniles or 71.5 percent. (The sample of 65 wings received from the Mountain counties was considered too small to give valid results.)

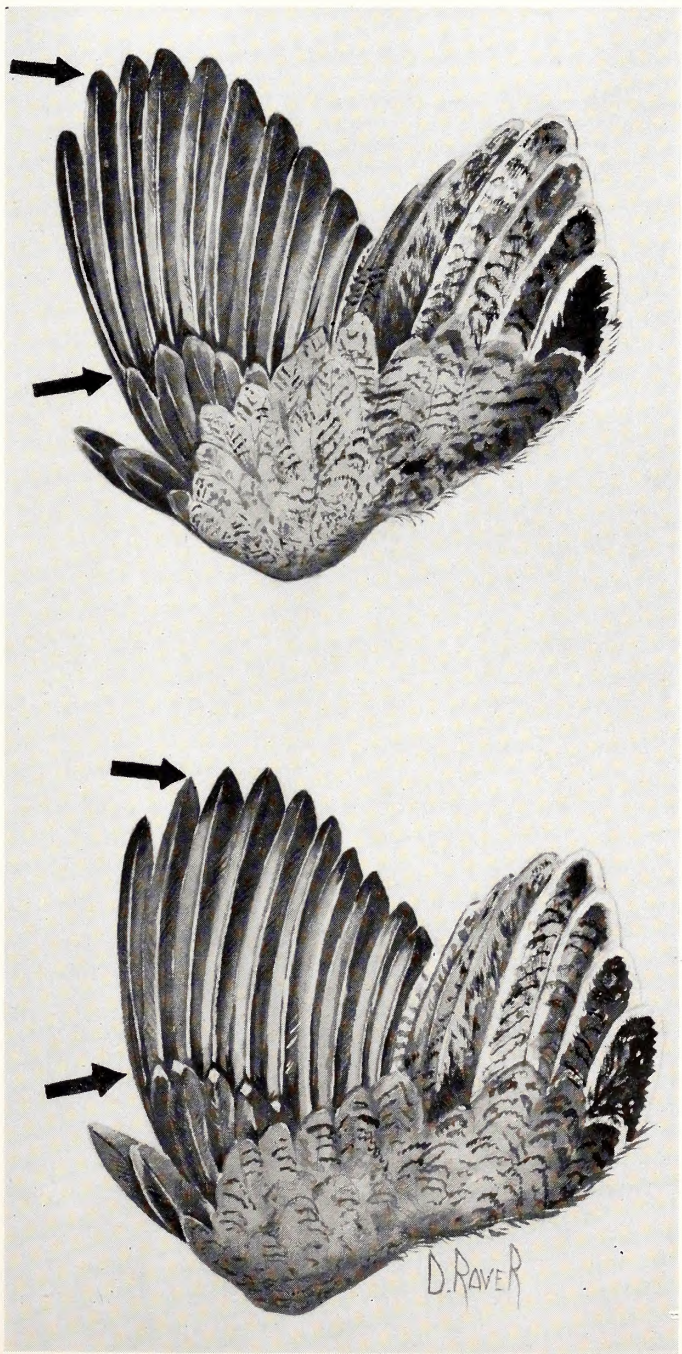
Investigation has established that about 80 percent of the bobwhite quail population is replaced each year. The rate at which this 80 percent loss occurs is not known, but it is evident that the maximum population occurs soon after the peak of hatching. In North Carolina this peak is probably reached during July. A considerable segment of the population is lost to natural causes between this population peak and the opening of the hunting season.

The optimum use of hunting regulations in the management of any game species provides equitable harvest of the surplus population without endangering the breeding stock. For the bobwhite quail—which has a high reproductive potential and a high annual turnover of the population—the hunting season could open as soon as the majority of the birds reach a huntable size. This would allow the hunter to harvest a portion of those birds which would otherwise be lost to natural causes. It would also improve hunter-success without endangering the quail population. Care, however, must be taken to avoid a season which would be so early as to result in the harvest of birds too young and too small to provide quality hunting. Precaution must also be taken against a season that is set so late as to allow over-shooting of those quail which are to be next spring's breeders.

It is realized that a one-year study cannot be expected to give all of the answers. However, it is felt that the information obtained does provide several valuable indications. Current plans call for the continuation of the study during the 1958-59 quail hunting season and possibly beyond. If each year's survey shows the same pattern it may well be that Tarheel hunters will want to re-appraise the advantages of the traditional Thanksgiving Day opening.

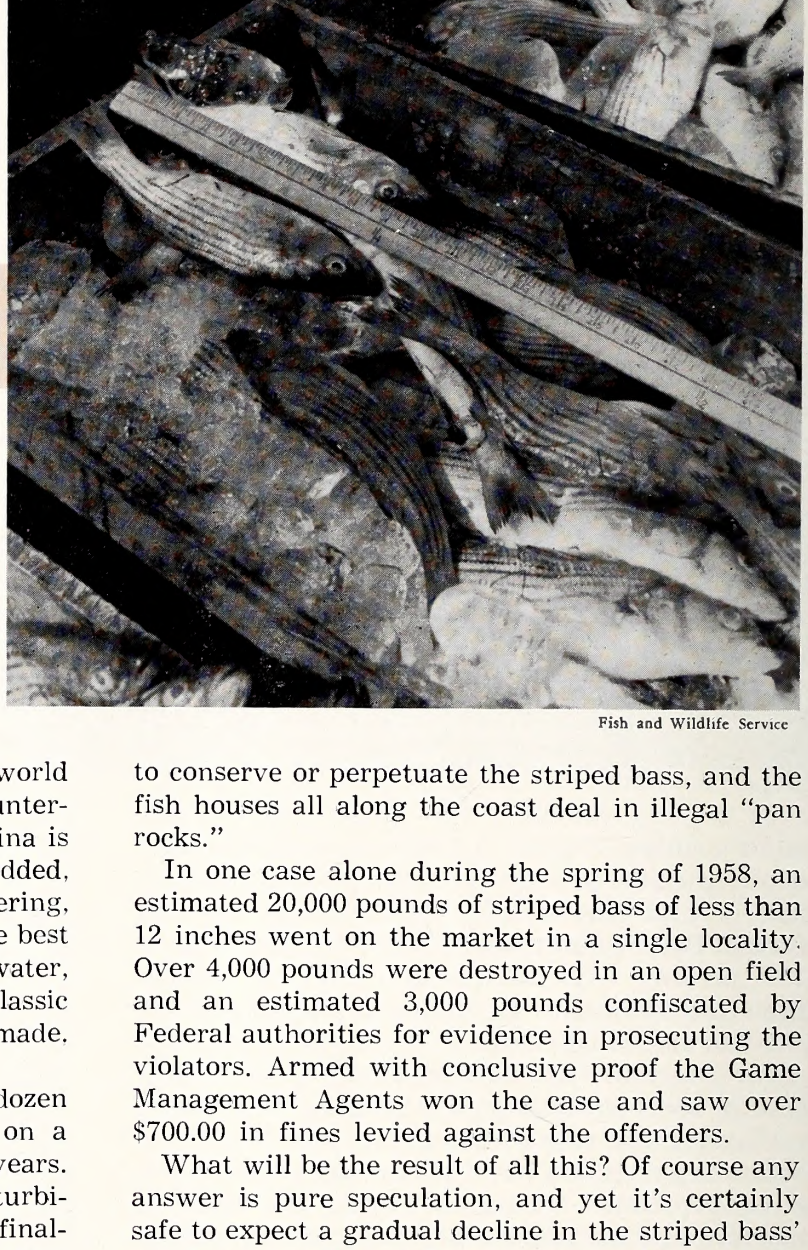
This drawing shows how to determine the age of quail. Adult quail (top wing) have rounded primaries (upper arrow) and primary coverts (lower arrow) which are a uniform slate gray in color. Young-of-the-year quail (bottom wing) have pointed primaries and whitish or buff-colored tips on the coverts.

Duane Raver



And Then There Were None

EDITORIAL



Fish and Wildlife Service

Federal Game Management Agents confiscated these illegal, undersized striped bass at a commercial fish house where they were being sold in large quantities under the dignified name of "Pan Rock." North Carolina's striped bass population cannot sustain continued exploitation without serious consequences.

THEY say that for every action in the world there is a reaction; for every force a counterforce. The striped bass of coastal North Carolina is finding this out. He is being encouraged, prodded, or otherwise inveigled into thriving and prospering, thus producing big, healthy fish under not the best of circumstances. His battle against dirty water, low water, infested water and no water is a classic struggle, uphill all the way. Progress is being made, even though small at times.

Precious spawning, limited to a scant halfdozen eastern North Carolina rivers, takes place on a satisfactory scale maybe one out of three years. Striped bass fry, hard pressed by pollution, turbidity, low water and other minor catastrophies finally reach the "nursery ground" near the river mouths. Evading predators, they find the going a little easier in the vast coastal sounds and even with leisurely eating, reach 9 or 10 inches by the end of their first year. Staying in great shining schools they roam the bays and oyster beds. Many get no further. For tons of these young striped bass, the end of the road is a two-inch mesh haul seine and a gum-wood fish box.

"Pan rock" is the dignified name for these illegal, undersized striped bass, taken in wholesale numbers from the coastal waters of North Carolina. No chance to spawn for these fish; barely a chance to grow up at all. The minimum legal size for striped bass is 12 inches, no matter where or how he is caught. Most sport fishermen consider even this too small, and perhaps with visions of a four pounder in the future, carefully put the little fellows back. Many commercial operators are not quite so eager to conserve or perpetuate the striped bass, and the fish houses all along the coast deal in illegal "pan rocks."

In one case alone during the spring of 1958, an estimated 20,000 pounds of striped bass of less than 12 inches went on the market in a single locality. Over 4,000 pounds were destroyed in an open field and an estimated 3,000 pounds confiscated by Federal authorities for evidence in prosecuting the violators. Armed with conclusive proof the Game Management Agents won the case and saw over $700.00 in fines levied against the offenders.

What will be the result of all this? Of course any answer is pure speculation, and yet it's certainly safe to expect a gradual decline in the striped bass' numbers even though forces are at work constantly to help their survival and improve their habitats. You simply can't expect sustained crops of young fish to be produced year after year with only a relatively few brood stock maturing annually.

What to do? Well, unless you're a commercial fisherman engaged in taking illegal striped bass there's nothing that you can do directly. Indirectly there's plenty to do, if you just will. First, don't buy any rockfish any less than 12 inches long—under *any* circumstances, whether you're a fish dealer or a housewife. Second, make it so hot for those violators that they will have to cease the unlawful fishing. Third, support those fighting the battle of the striped bass. Only through public opinion will any changes come about. Unless the changes *do* occur the striped bass will follow the Dodo and Passenger Pigeon into the history books; and then there were none.—*Duane Raver*

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Tar Heel Waterfowl Season Opens November 17

The 1958-59 waterfowl season begins on November 17 and ends January 15, according to the U. S. Fish and Wildlife Service. The bag limits are two geese (except snow geese) daily and four in possession. For ducks the daily bag limit is four with eight in possession, with an important exception: only two canvasbacks or two redheads or one of each may be taken daily bag, and only four canvasbacks or four redheads or four of these species in the aggregate may be had in possession. The reason for the retriction on these species is a shortage of birds coming in from the northern nesting areas. All persons 16 years old or older are required to have a validated duck stamp in possession while hunting waterfowl. The stamp must be affixed to the hunting license and be validated by the owner's signature thereon. The use of recorded bird calls or sounds, or recorded or electically amplified imitations of bird calls or sounds is prohibited.

Federal and State Officers Cooperate on Law Enforcement

Laws and regulations and their fair and impartial enforcement help to insure that every sportsman gets his share of the annual crop of game and also save breeding stock for another year. Federal Game Agents and North Carolina Wildlife Protectors cooperate closely in apprehending those who are unwilling to play according to the rules.

Wildlife Federation Meeting Big Success

In the opinion of officials, delegates and vistors, the 1958 convention of the N. C. Wildlife Federation was a big success. Held at Hickory October 8 and 9, the meeting was attended by nearly 200 delegates and visitors. Thomas Reese of Hickory was elected President of the Federation. The Wildlife Resources Commission held its October meeting in conjunction with the Federation Convention.

Wildlife Commission Meets November 3

The Wildlife Resources Commission will hold its November meeting on the 3rd immediately following a public hearing in the Hall of the House of Representatives to consider proposals for changes or amendments for the 1959 fresh water fishing regulations. The 1959 regulations will be set at the Commission meeting.

Santeetlah Sketchbook

by Bill Ballard

A hunting experience you'll want to repeat is a trip to Santeetlah Wildlife Management Area after boar and bear.

It's plenty waiting f... to come ... lonely, too ... they drop ... at th...

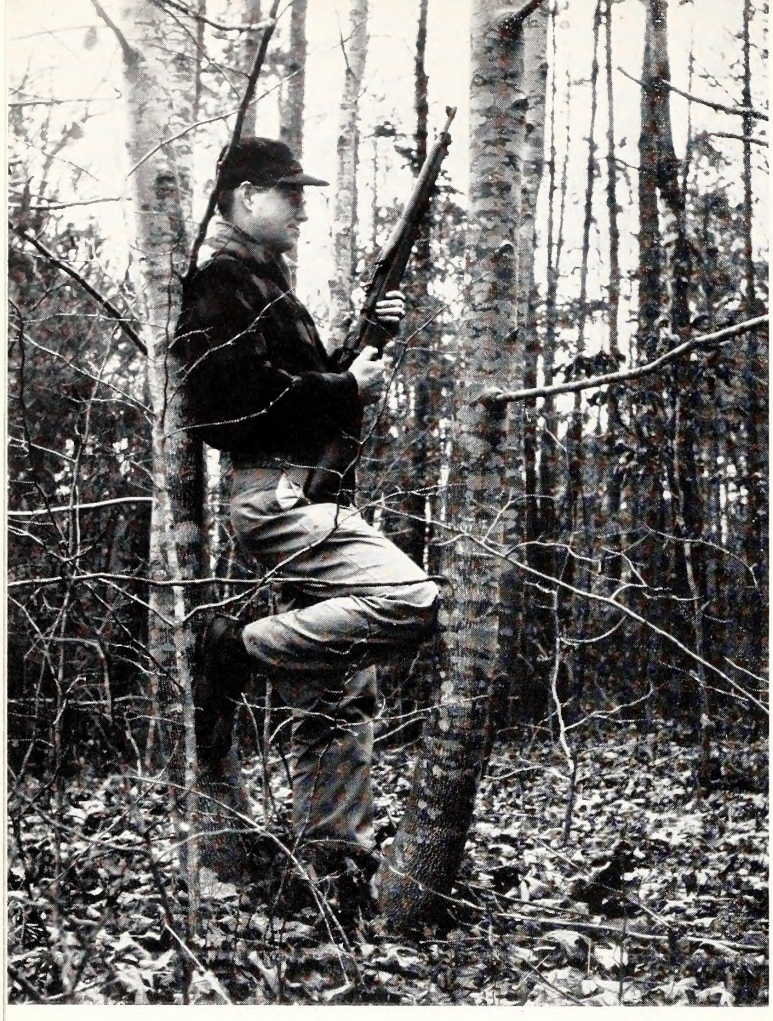
Daybreak found the drivers and dogs crossing the icy waters of a creek, while our guides took us on up the mountain to the stands.

The dogs ... Redbone, b... are all...

For info... concerning ... boar hunt... Santeetlah ... surrounde... turn to pa...

Boar it is. He's a descendant of those imported into these mountains 40 years ago. They grow big, too. Some have scaled 400 pounds.

It's Russian boar you're after up here, but the dogs aren't choosy. It could be a bear.
You stomp, walk, and sit while watching and listening— and then you hear it— the dogs have something running.
A roaring fire against the evening chill and talk of the hunt marks the end of a memorable day



The STILL

Did you bag a buck last year? If not, this entertaining and informative article — must reading for the novice hunter — will tell you how to better the odds on your next hunt.

WHEN you ask men why they hunt, they are hard put to give honest answers. Some say they just like to be outdoors, others mention the feel of the woods. If your question falls on the ear of a deer hunter, he will tell you that deer hunting is one of the greatest thrills possible to experience.

Pressed further he tries to describe the "crunch" of a deer picking its way down a runway on a frosty morning. Still too far away to see, a cautious step is all that can be heard. Did it stop? Slowly on again. Is he coming your way? Is the wind right? Is it a doe? Another hunter maybe? There it is again, just a dry rustle of leaves. Eyes strain till they hurt. A branch moves and a patch of gray disappears. Your ears ring. Then another step. A tail flicks. Up comes the head. A big buck. Squeeze. He's yours.

In that interval, maybe only a minute or two, a boy becomes a man and some men become ten feet tall. The thrill is something that has to be experienced. It cannot be described. It's the thing that brings the old hunter back to camp year after year, and the thing that will take thousands of sportsmen afield this fall.

There are countless thrills to deer hunting, but the still-hunter probably enjoys his moment most of all. Still-hunting in the true sense can be complicated, but watching a runway is still-hunting in its simplest form. In many respects it can be the easiest and most enjoyable way of bagging a deer.

The old timer may prefer to follow a track and match wits with his quarry on the move. A newcomer can do worse than pick a likely spot and wait. Each has its converts, each has its place, and the longer you keep at it the more you'll be convinced that the Lord's on the side of the deer.

There's an old saying around deer camps that every hunter has one chance. Whether it's true or not I wouldn't know. But if you hunt with that conviction—always believing the next minute may be it, you'll be ready when your chance comes.

Being ready means a lot of things and it starts before you leave home. Long before you shove off you'll be the victim of "The Fever." This is something all deer hunters get and first symptoms are noticed as early as September. The Fever isn't a condition, it's a contagious disease.

There's a lot more to this getting ready business than meets the eye.

Assuming your duffle bag isn't already bulging, there are matters that need attention. Clothes should be warm, windproof and light. Shoes should be waterproof and above all, they should fit. Books have been written on "grub lists," on how to sight-in your gun, sharpen your knife and read a compass. Consult these tips by experts. The books won't mention it, but the thing I consider most important: Don't forget your license.

With camp set up, and your wood cut, it's time to end the foolishness. I might say right here that I don't hold much with those who go deer hunting just to have a party. There's a time to hunt and a time to party but you can't do both and kill a deer.

I am convinced that an extra day spent going over the ground before the season opens is worth as much or more than an extra day on the other end of the hunt. It's a matter of record, in Michigan at least, that about two-thirds of the total number of deer killed are taken the first three days. There is further evidence to show that the first day's kill is equal to or even exceeds the combined total for the second and third days. Translated into practical

Hunter

by W. W. Shapton

Reprinted From Michigan Conservation

Photos by Jack Dermid

application this means that where you stand at daylight the first morning should call for some serious deliberation.

Old time still-hunters can size up a country with a minimum of prowling. Chances are they can't tell you exactly what they look for either. Buck sign is always important—rub marks, signs of fighting, location of preferred food and active runways. Or, it may be a combination of things. Deer, and especially bucks when not disturbed, have definite routes of travel. They follow certain lines of cover, use the same ridges to and from feeding areas, or cross streams and fences at particular places. I have more than a strong suspicion too, that once the shooting starts, the veterans have a battle plan that includes some schedule changes. Pre-season runways are quickly traded for thicker cover. They now sneak from place to place and seldom show in the open. They spend a lot of time in the densest thickets and may bed down in places impossible to approach quietly and unobserved. For this reason the runway you pick for the second day may be entirely different from that selected for the first. Think that over.

Pick your stand so you can command as many approaches as possible.

If it's a feeding area you're watching don't make the mistake of getting too close. Deer do a lot of feeding during the night which means they might be at that favorite feeding spot just before daylight. By covering the approaches from some distance away, you can get the late feeders as they leave as well as those that come in to top off in mid morning.

You'll need to be at the feeding areas early the first morning to be successful. Forty-five minutes before daylight is not too early. This means knowing how to find the spot with a flashlight and picking landmarks that can be verified in the dark.

In country where hunters are numerous, first morning stands of another type are usually preferred. In this situation a half hour's cannonading will be enough to alert every deer in the area. Even those that haven't been spooked or shot at will pick up man scent everywhere. Deer will be on the move. While they may attempt to reach some well known escape cover, they will be shuttled back and forth considerably in the process. Some will sneak, and some will run and you can turn this to your advantage.

Fingers of swamp that reach out into the old stumpings will draw running deer like a magnet. A notch in a hill is another bet, but here again figure to catch them out front, or you may be able to get only one shot. Other natural features can be found such as the end of a lake or sizeable beaver flooding which will influence general direction and funnel all the animals from a large area right into your sights.

Not to be overlooked is the location of major parking areas, drive-in points or campsites. These or similar concentrations of hunter activity will push the deer outward. Select your stand out on the rim of one of these carnivals and your luck will confound the experts.

A deer stand may or may not be a physical thing: it depends upon the individual. Some people stand on stumps, others sit with their feet in a hole. Natural blinds are often used and occasionally an energetic fellow will carry an axe just to build one. The crux of the problem is to see without being seen. If you can stand still, very little else is needed. The old saying "that deer can see movement farther than you can see deer" is true at least in principle.

Personally I prefer to stand rather than sit, and keep my feet on the ground, not on a slippery stump. I also stand in front of whatever cover is available, not behind it. This has three advantages. It gives an open view of the area being watched, breaks up your silhouette, and screens any hurried movements in turning around when you hear something coming from the rear.

The place for your rifle is in your hands, not against a tree. A hurried grab for a gun out of reach will only transform a walking target into a runner. And when you grab your gun, make sure the target is a deer. When the gun gets too heavy to hold, put the butt down on the ground in the old army position of parade rest. This not only saves thumbs but is positive insurance against a nickname like "four-toed Jake."

The subject of smoking can be covered in four words. Smoke if you must. Keep the hand motion to and from your face to a minimum, however, or you may unknowingly give your trophy the high-ball. If you've packed a sandwich it's a good idea to get that out of the way during the first lull. Eat it all too, not just half of it. You can't be at your best with your mind on the other half of that sandwich.

I can't remember ever standing at a place for more than an hour without a half dozen other spots

coming to mind where the possibilities seem better. Fight this feeling with all your might. As soon as you take a hundred steps you'll jump a deer that was silently working his way toward you. This will happen more often than not but you'll probably have to learn the hard way before you're convinced. If your mind wanders, put it to work selecting a tree to dress out the kill.

Stick with your runway, don't waste valuable time walking.

Another phenomena hard to explain is the sudden appearance of a deer right in front of you. You'll swear it must have crawled up out of a hole because you were watching and listening all the time. It will happen, mark my word. When it does, I'll leave it up to you as to how to get your gun up and go into action. Every way I've ever tried was always wrong.

What to look for isn't learned from books. Old timers say, "deer don't walk, they glide." I believe them. A spikehorn's head will look queer whereas that of a doe will be slim and graceful. No need to describe the looks of a rack, a deer with a rack doesn't have a body. You won't see anything else. Then two to one your first shot goes right between the horns.

Deer are black, gray and sometimes red with all gradations in between. They crawl, walk, trot, and have three extra speeds forward beyond that. They can broad jump, high jump, and swap ends without touching the ground. They sometimes sound like men walking and will rustle leaves like squirrels. Those that you don't see, don't make any sound at all and these kind are most numerous. What you'll sometimes think is a deer will turn out to be a log, stump, stones, or even a man. It's no coincidence that hunters with telescope sights see fewer deer than other people.

Nothing has been said about the direction of the wind but a glance at the chimney before you leave the shack, should tell you on which side of the ridge to stand; not even a "muley" will run downwind. The sizzle of rain on the old stove pipe should mean "Hit the brush with something that sheds water." Deer, like people, can't lay still long when they are wet. They'll spend the day looking for dryer spots and you may intercept one between beds. A good rain cuts down the competition.

Maybe some of these tips will prove valuable to you. Maybe they won't. But in either case I'm sure that you'll experience that same unexplainable thrill when you bring that first deer into your sights. So roll out—not just over—hunting season is here.

PROTECTOR OF THE MONTH

Wallace W. Jones

Mr. Wallace W. Jones, Wildlife Protector for Forsyth County, was born in Walkerton, North Carolina on September 11, 1921. The son of Mrs. William Shade Jones and the late Mr. Jones of Walkertown, he attended the Walkertown schools and served as a Special Deputy prior to his appointment as Wildlife Protector in December, 1949. He has attended three Wildlife Protectors' Training Schools, conducted by the Institute of Government in Chapel Hill, North Carolina.

Mr. Jones entered the Armed Services in 1943, and was a member of the 85th Infantry Division, serving in Italy in 1944 and 1945. His hobbies include baseball, hunting and fishing. He is married to the former Grace Jones of Lewisville, North Carolina, and they have one daughter, Linda.

The Jones' are members of the Burkhead Methodist Church in Winston-Salem, where they reside.

ENFORCEMENT RECORD FOR SEPTEMBER

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other law enforcement agencies in the enforcement activities for the month of September, 1958.

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

Persons checked	20,210
Total prosecutions	301
Total convictions	284
Total cases not guilty	9
Total cases nol prossed	8
Total fines collected	$2,331.00
Total costs collected	$2,069.45

IT'S THE LAW!

QUESTION: Is it a violation of the law to take waterfowl with a Duck Stamp that does not have the signature of the owner across the face of it?

ANSWER: The Migratory Bird Hunting Stamp Act of 1934 provides that no person who has attained the age of 16 years shall take any migratory waterfowl (brant, wild ducks, geese, and swans) unless at the time of such taking he has on his person an unexpired Federal migratory bird hunting stamp (commonly called Duck Stamp), validated by his signature written across the face of the stamp in ink prior to his taking such birds.

IS CONSERVATION EDUCATION THE Price of Our Survival?

By Bill Hamnett

CONSERVATION of natural resources is truly the price of our survival as a people and as a nation. Being one of the most important of these United States, North Carolina should maintain an awareness of—and prudently pursue—a course that will steer us clear of the rocks of clandestine destruction manifest by lethargy and indifference. A knowledge of the basic natural resources which are essential to the vigor and security of our state—soil, water, plants, animals, and a lengthy list of minerals—must become a part of our everyday concern in agriculture, industry and business. Someone once said that:

"For the lack of water, the mill won't turn.
For the lack of grain, no flour was found.
For the lack of good soil, poor crops would grow.
For the lack of foresight, man lost his soul."

It is little to ask that we begin to recognize—as our land goes, so goes our wealth. North Carolina is no stronger than her remaining natural resources.

There are many avenues of approach that we may travel to the citadel of security for our natural resources, but one stands out stronger than any of the rest—conservation education for our youth.

It is the purpose of this article to stimulate greater emphasis on conservation education through fuller cooperation between all agencies and a more significant coordination of existing opportunities.

To be sure, there have been good local and county-wide programs of conservation education instituted. In too many instances, however, such efforts have been scattered and there have been too few attempts to coordinate the endeavors of many conservation and education groups. The lack of awareness of this last point has proven to be the obstacle in many instances.

Let's see, first of all, what can be a constructive approach in our elementary and secondary schools. The conservation education curriculum should be based upon local needs. Conservation should be properly integrated with all appropriate school subjects, giving adequate attention to the scientific, economic, and social aspects. Materials and teaching aids should be based upon the local pupil's needs and understandings. Full use should be made of community resource leadership in implementing such a program. A survey of school-community resources and how they affect everyday working and living of its people is an appropriate beginning toward developing a conservation education program.

Basically, all state and federal agencies are dedicated toward serving their citizenry. In some communities these agencies are an untapped resource in themselves. Some of the agencies available are the Department of Conservation and Development, with its divisions of forestry, water, minerals, and state parks; the Wildlife Resources Commission with its divisions of fish, game, and education; the State Museums of Natural History and Art; the Extension Service, which reaches into every county; the Soil Conservation Service, the U. S. Fish and Wildlife Service; and the U. S. Forest Service. Management can contribute immeasurably to the success of your conservation education program. Many private non-profit organizations such as garden clubs, women's clubs, and local civic groups are devotedly interested in the better use of our natural resources.

Conservation education is training for better living and the services that these organizations offer are closely associated with the practical aspects of how we use these resources.

Realize that many free or inexpensive materials, including visual aids, bulletins, posters, and such, are prepared by these agencies. Stock for tree planting, wildlife food and cover plantings, and soil erosion control may often be obtained for very little and may be planted in areas where actual conservation practices need to be applied. Many practical demonstrations in soil conservation, tree and wildlife food planting, pollution control, farm pond construction and management, community planning and others are conducted by the agencies previously mentioned. Schools should take advantage of every opportunity to witness, and whenever possible participate in demonstrations of conservation practices.

Although most of our emphasis in conservation education should be devoted to the schools, it must be regarded as a school-community function. The great potential for in-service training of adults should not be neglected.

This is the first of a series of articles that will provide ideas and suggested aids to better put across the problems and solutions of conservation activities to our school children and interested adult groups.

WINTER FISHING *in the* SURF

By Jim Lee

Photos by the author

FISH in the surf in mid-winter? Well, why not? Some dyed-in-the-wool anglers claim that the best salt-water fishing comes when the water freezes on top of your rod. Best fishing, that is, if you like to match wits with the spotted weakfish, or speckled trout as he is known locally.

Down at Topsail Island, which claims to have the best weakfish angling along the Carolina coast, several of the year-round enthusiasts can be found up to their waists in the surf nearly every morning from late September to early February. From half an hour before sunrise to perhaps nine o'clock, these sporty fishermen take advantage of their knowledge of the weakfish to convert the prized "trout" to fillets sizzling in the pan.

Let's settle one point right now—the name of the fish. The title "weakfish" has nothing to do with the fighting qualities of the scrappy fellow, but refers to the tenderness of his mouth. Handle him gently when he's on the hook for the soft muscles of his mouth tear easily. The fish has no relationship to the trout of our North Carolina mountains; actually he's related to the drum family.

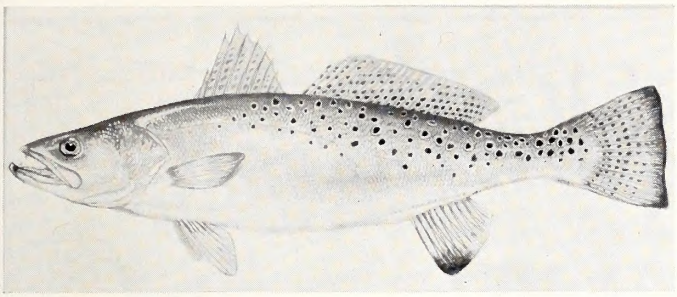
Roger Minton, motel operator at Topsail Beach, has caught several hundred weakfish during the past three years, most of them in winter. The secret of his success, he says, is to find an off-shore bar that forms a shallow trough or slough. This is where the fish come to feed early in the morning during winter. And there is where Minton and his neighbors put into practice what they have learned about the weakfish's habits.

Like other game fish, the spotted weakfish feeds on minnows of various species. At times shrimp make up a large part of their diet, but in winter they forage on small minnows such as anchovies and silversides. Many of these salt-water minnows travel in schools—look for a school of small fish and you may well find weakfish lurking nearby. In winter, it's almost a sure bet.

In the cold water of winter the minnows come close to shore to feed early in the morning when the warmest water that they can find is that lapping over the sandy beach. After the sun begins to warm the water they swim further out into the ocean, but for several hours around dawn they are close in to shore.

And it's during the time that the minnows are feeding within casting distance that Minton finds his trout.

For some reason the minnows seem to prefer the calmer water within a slough, and the weakfish are found along the outer edge of the depression. To cast to the game fish, the angler has to place his lure some thirty to fifty yards from shore and troll in from there.



Duane Raver

The spotted weakfish—better known as the sea trout or as the speckled trout—is at home in salt water or brackish waters.

Minton uses a 6½-foot rod with 6-pound test line for weakfish. Light tackle will yield to the struggles of the fish long enough for him to wear himself out, says the motel operator, and he adds, "You can't horse him in—let the waves help you to beach him because he is very tender-mouthed."

Roger's favorite fish-fooler is the Mirrolure, with the yellow-and-white proving most successful for him. He has also caught fish on the Hopkins, the Sea Hawk, and the Cedar Stump. No one seems to use live bait in this area, although the success of anglers in other areas seems to indicate that this would be worth trying.

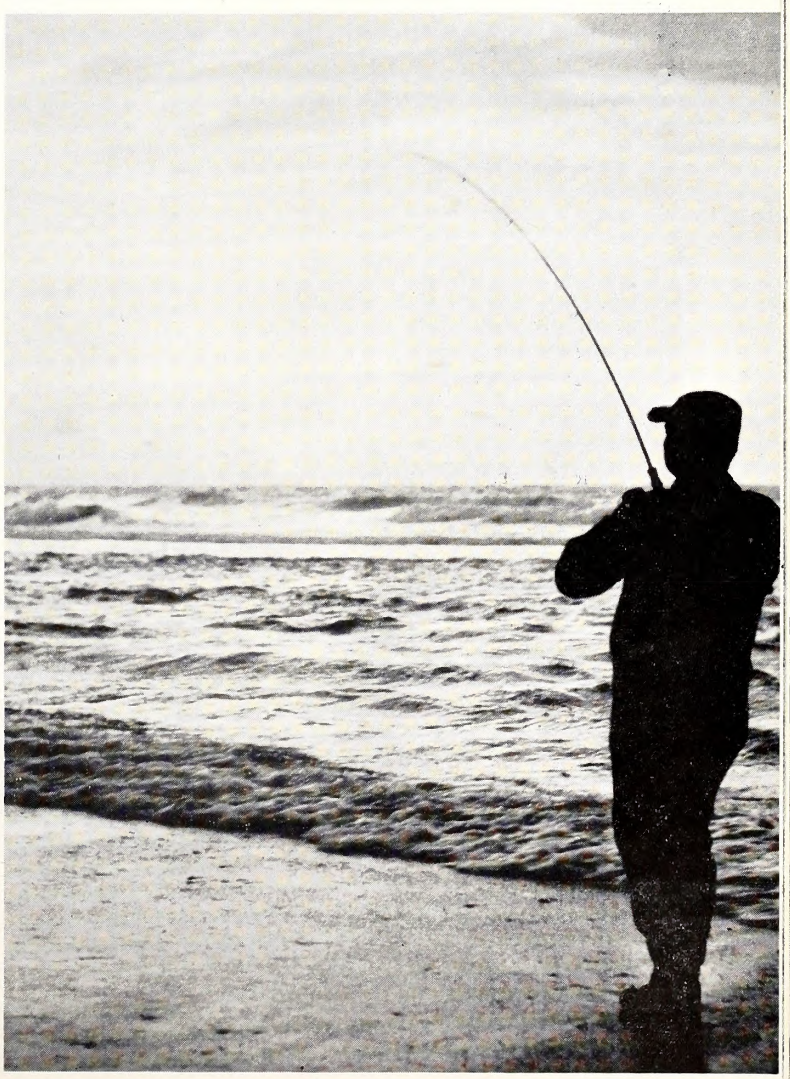
To reach the feeding trout with his light spinning tackle, Minton uses waders and plunges into the surf, wading out until he's waist-deep in the icy water. After casting he wades back to the shore and slowly reels in his lure. Matching the swimming habits of the minnows, he reels in faster when the water is warmer, more slowly when the water is colder and the minnows are sluggish. He gives some action to the bait by giving a snap to the rod tip every other turn of the reel handle as he retrieves the lure.

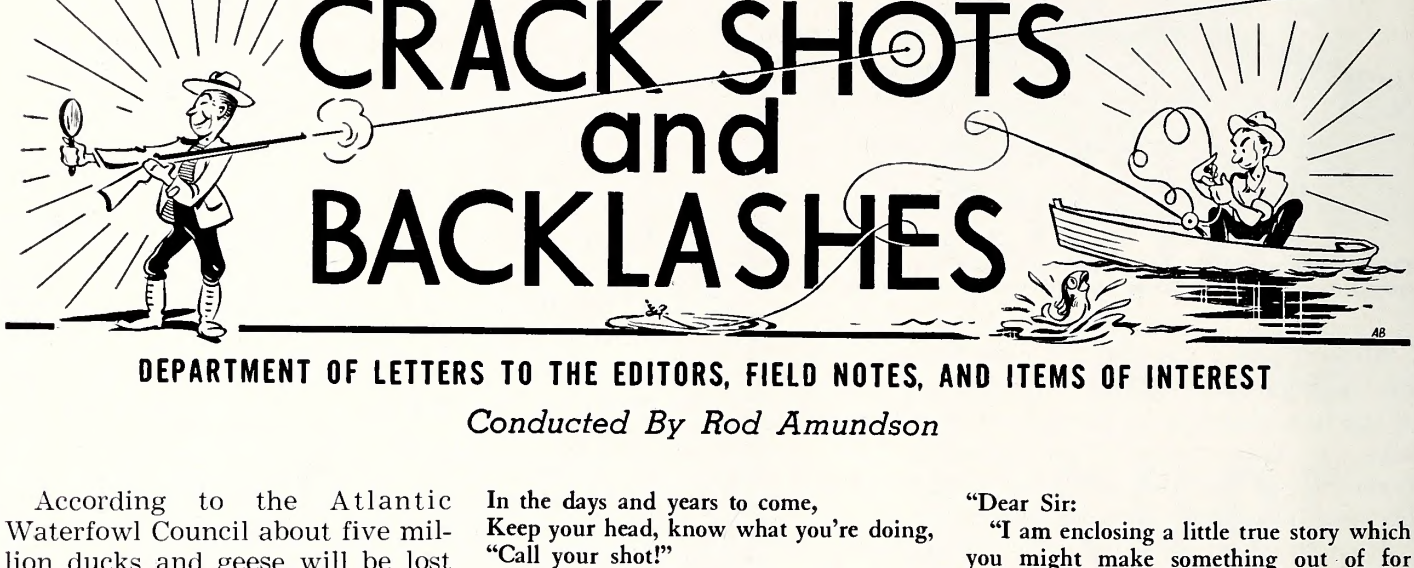
What about success? In substantiating his claim that the 22-mile shoreline of Topsail Island offers the best weakfish angling along the Carolina coast, Minton boasts of a record of some 400 fish in three winters.

What about accommodations during the fall and winter? There are several North Carolina beach hotels and motels that operate year-round, and fishermen wishing to try the off-season fishing should have no difficulty in finding a place to stay. Minton commented that the "season" for his motel now extends months beyond the traditional Labor Day closing; he has reservations well into December from sportsmen who combine weakfish angling with waterfowl shooting. Until November 18 the rail season will give fishermen a bonus in opportunity with the sporty marsh hen as a legal target.

Although record weakfish weights come more often from Florida, six-pounders along the Carolina coast are not unusual. The avearge weight of Topsail weakfish is 2½ to 3 pounds, with 12 to 15 fish a good morning's catch—enough to provide several tasty meals for a family.

BELOW: A fisherman wades out into the cold surf to cast his lure far into the dark and churning water. AT RIGHT: A fish is played gently as the sun comes up over the sea—success which is not assured until the weak-mouthed fish is landed.





DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

According to the Atlantic Waterfowl Council about five million ducks and geese will be lost and wasted this year because of failure to retrieve crippled birds. With a shorter season this year and a shortage of some of the diving ducks, Tar Heel wildfowlers should make special effort to make clean kills and retrieve all possible cripples. Besides straight shooting, a good retriever is the best answer to cripple losses. The following poem points up the issue:

"CALL YOUR SHOT"
by
Bill Baxter—Wilmington, Delaware

There's a law laid down in billiards
Which the sportsman now employs
When the ducks head up into the winds,
And come to the decoys:
Name your bird, and know the species,
And always take the drake.
"Call your shot."

Before the marshlands' drainage,
When those big flights came along,
We brought in all that we could kill
And never thought it wrong:
Before our modern firearms,
And ducking clubs, to boot,
There was one restriction only,
"Are they close enough to shoot?"

Now, our wildlife experts tell us,
Who study trends and flight,
Our scientists and naturalists
Whom we trust to put us right,
That we must have a limit,
And not shoot into the flock;
Cut down our crippling losses;
Increase our breeding stock.
And under new restrictions,
When the birds come down each Fall,
Shoot within a certain limit
Or, we may not shoot at all.

So, to keep the wildfowl flying
In the days and years to come,
Keep your head, know what you're doing,
"Call your shot!"

Wisconsin Conservation Department

Four rules for duck hunters: (1) Let the birds come close; then you will kill clean or miss clean. (2) Learn to identify the ducks. (3) Observe new regulations on canvasbacks and redheads, or pass them up so they will breed future flocks. (4) Return leg bands and do your part in migration research.

"Dear Sir:

"I am enclosing a little true story which you might make something out of for the magazine. Today a man up the street in Sanford gave me one dollar and asked that the WILDLIFE Magazine be sent to his nephew. The little boy is ten years old and lives in England. He reads all the outdoor books and magazines he can get hold of and his uncle thought it would be a good idea to send the WILDLIFE Magazine to him. His address is: Peter Redsell, 5 Handbury Avenue, Worchester, England.

Sincerely yours,
Tom L. Rollins, Sanford, N. C."

Thanks, Tom. We're glad to welcome Peter aboard, and trust he is getting WILDLIFE by this time.

"Dear Sir:

"Up until this summer we always had a great many bluebirds around our farm. I built houses for them and they were always here during the whole summer. This summer, however, we did not see a single bluebird. Were they scarce throughout the state this year? Do you think that a lot of them may have died during the cold winter of 1957-58?

Yours truly,
J. M. Jenkins, Jr.
Castle Hayne, N. C."

Dear Mr. Jenkins:

From reports that have come to my attention there is a decided scarcity of bluebirds in comparison to former years, and this may be attributed to the harsh winter and early spring seasons of 1957-58 here in the South. (Our weather reports indicate the winter season in Florida was the most severe in recent years.) In areas studied farther north estimates of 10 to 20 per cent of the normal populations returned.

Yours sincerely,
W. L. Hamnett
Wildlife Education Representative

More About Boar Hunting

This month's center spread by Artist Bill Ballard is very likely to stir up additional interest in wild boar hunting. Since wild boars are wilderness creatures, the problem of sleeping and eating accommodations, plus guides and dogs, is an important factor. Bill made a survey of people who supply such accommodations, and here are the ones he heard from:

Fred Bruckman's Blue Boar Lodge, Robbinsville, N. C.

Patton Phillips Motel, Robbinsville, N. C.

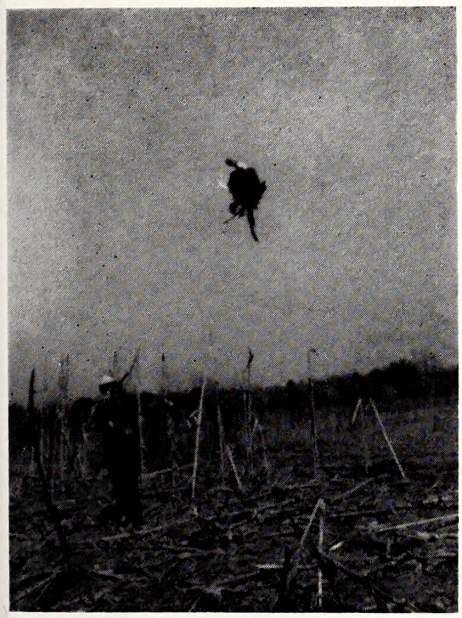
Tapoco Lodge, Tapoco, N. C.

Fontana Village, Fontana Dam, N. C.

Wonderview Ranch, Hayesville, N. C.

Carolina Motor Court, Hayesville, N. C.

Orr's Cabins, Robbinsville, N. C.



Harry Venters

A ringneck is nailed as its rises above the corn at Venters Pheasant Hunting Farm near Richlands, one of the dozen commercial shooting preserves in operation in North Carolina.

"Dear Sir:

"Enclosed one dollar to renew my subscription to WILDLIFE IN NORTH CAROLINA. I enjoy the "Crackshots and Backlashes" department and all the other writeups very much but what has happened to the "Old Doc Battersby" stories? I enjoy them very much. I am sure there are others that would like to see him back.

Yours sincerely,
Jimmy Abernathy
Connelly Springs"

"Old Doc" is back. We will hear from him again from time to time.

IT PAYS TO KNOW YOUR DUCKS

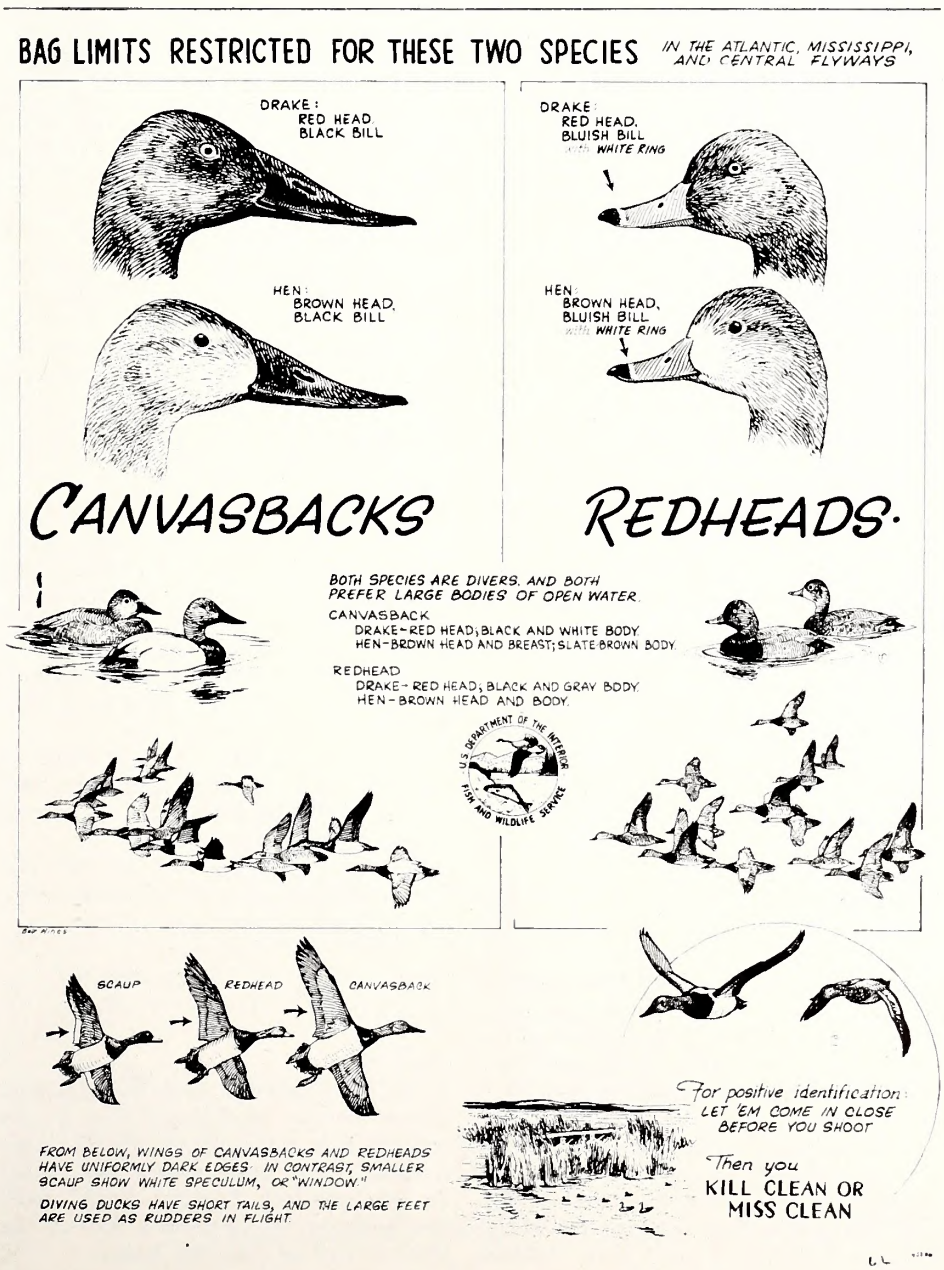
Under the 1958-59 waterfowl regulations, hunters in the Atlantic, Mississippi, and Central flyways are limited to two redheads or canvasbacks in the aggregate in the daily bag and four in the aggregate in possession.

The restrictions on "cans" and redheads this year are due primarily to a combination of two things. First, these species are rated by sportsmen as two of America's finest game birds. Hunters, for example, take an astonishing 47% of the canvasback population each fall, a greater percentage than the kill of any other species. Redheads, often flying with the "cans," also are vulnerable. Secondly, during the past three years, dry weather conditions on the prairies of the United States and Canada have hit these species hard, eliminating nesting sites and reducing the hatch of those which did nest.

If duck hunters "look a little harder and shoot a little slower" more canvasbacks and redheads will be spared for next year's nesting, and crippling losses of all species of ducks will be considerably reduced, said Ross Leffler, Assistant Secretary of the Interior for Fish and Wildlife, recently.

"Limiting shooting of certain specified species may be a normal thing in the future," adds Mr. Leffler, "because some species are more adversely affected by dwindling habitat than are others. Some years are good for early nesters and bad for late nesters and sometimes it is just the opposite. Some ducks try again if their nest is destroyed, others will not renest. And hunting regulations will have to be fixed accordingly."

Now, more than ever, it will pay those hunters who have considered a duck as merely a duck to learn more about them; at least, to learn to identify the species.



Don't expect wonders from your bird dog on Thanksgiving day if you have neglected him in the kennel or allowed him to run free without discipline since last season. But it is not too late to give Old Rover the attention he deserves. Bay Nowell of Wendell, who believes good training pays dividends, is shown working on the style of his young pointer. The dog is pointing a pen-raised quail in a small cage.

Mr. J. H. Cornell
Wildlife Resources Commission
Fish Division
Raleigh, N. C.
Dear Mr. Cornell:

I enjoyed very much your reply to the little boy who complained that young ducks were eaten on his fish pond. I have struggled with this problem for over 10 years. The first year my pond was dug, we reared mallard ducks with no difficulty on the water. The few snappers were easily controlled by baiting a wire turtle trap with dead fish, and since the snapping turtle is easily trapped in a wire trap it offers no real problem.

The second year my pond was in operation, bullfrogs became abundant: A bullfrog will destroy little wild ducks at night as fast as they can hatch. They are much more efficient than the snapping turtle since they are usually abundant. I have reared 8 species of wild ducks this year and 2 species of wild geese but not in the water. All birds were reared in brooders or on dry land with only enough water to drink, and this is the real secret of rearing wild waterfowl, keep them from getting chilled by keeping them out of water and by keeping them out of the water you can also control their many enemies that live in water, then too, many a black bass has been dressed in this county in whose stomach a baby duck has been found.

Of more than passing interest is the fact that a four inch snapping turtle can climb a four foot fence. I have watched this slow but sure maneuver and if I had not seen it I would not have believed it possible.

A breeder of wild ducks here in the southeast must control every single environmental factor on his pond to be successful: the pole trap for great horned owls and barred owls (one is just as bad as the other).

This summer I have lost a hen baldpate to a great horned owl and in two nights I had caught the marauder with a pole trap, also I lost a hen pintail on the breeding pond from a snapper. He was a six pounder and caught in two days with a wire turtle trap using the dead duck as bait. So the ecology of a farm pond with ducks on it is far from simple.

Of all the enemies of little ducks in North Carolina on farm ponds the bullfrog is the worst since there is no real control for such a situation.

My very best regards to you. We can learn something new about nature every day.

Sincerely,
J. L. Stephens
Lumberton, N. C.

"Dear Sir:

"In the September issue you informed Jimmy Purdue of Raleigh that it was legal to fish with rod and reel in one's resident county using natural bait. What do you consider "natural bait?" Does this apply to fishing from a boat in the river as well as from the bank?

"I would also like to know the law about fishing from a boat in the river that winds in and out of Virginia, but we launch our boats from a bridge in North Carolina, and take out from a North Carolina bridge.

Sincerely yours,
Roy C. Woodall, Jr."

Natural bait is natural bait, whether dangled from a river bank or trolled from a helicopter. The only formal agreement between Virginia and N. C. on reciprocal fishing licenses is in Kerr Reservoir. Where other waters are concerned, if you fish in Virginia you need a Virginia license.

Gentlemen:

Isn't there a law in regard to stream pollution?

On Highway 52 just 3 miles out of Winston-Salem at W. E. Graham Granite Company is a stream that is a disgrace to the Wildlife Commission. Please investigate this.

Just drive out 52 towards Rural Hall and see this situation from the Highway.

J. B. Combs
Winston-Salem

How not to kill a buck in one easy lesson! During the deer hunts at Uwharrie last season, WILDLIFE'S roving camera caught a hunter enjoying his sport in comfort.

"Dear Sir:

"First of all I am not a trapper, but a hunter (with no offence to trappers) and am a subscriber to WILDLIFE IN NORTH CAROLINA and read every issue thoroughly.

"After reading the letter of Mr. Moore's from Salisbury, in "Crackshots and Backlashes," I feel that I may be able to help him. I believe if he would ask the landowner where he is to hunt, if there are any traps on his place he would tell him their where-a-bouts. Even if it is the best rabbit hunting ground, I am sure he would rather pass up a rabbit or two than to lose a good beagle. I am the same way about electric fences with my two bird dogs. It just ruins a day's hunt when one of them hits an electric fence, so I always

ask the landowner if he has any electric fences, and where they are so I can dodge them.

"As far as the trapper having to release the trapped dog, the dog's owner should be with the dog when he is running loose, and release the dog himself. I would think it would be too much to ask a trapper to trip all of his traps every day.

"I think you have the best magazine that I have read concerning wildlife. The main reason I like it is because it has news about wildlife as I know it and not about wildlife in other states or countries.

Yours sincerely,
Earl B. Johnson, Burlington"

Mr. J. B. Combs
Winston-Salem, N. C.
Dear Mr. Combs:

This will acknowledge receipt of your card inviting our attention to a stream pollution problem in the vicinity of the W. E. Graham Granite Company on Highway 52, three miles out of Winston-Salem toward Rural Hall. The stream may be a disgrace to the polluters, to the city of Winston-Salem, or to the State of North Carolina, but we assure you that is is not a disgrace to the Wildlife Resources Commission. This Commission is specifically prohibited by law from taking action in cases of stream pollution.

You are quite correct that there is a law in regard to stream pollution. It is administered by the State Stream Sanitation Committee within the department of Public Health. A copy of this letter will refer your complaint to the proper agency.

Very truly yours,
J. H. Cornell, Chief
Fish Division

Mr. J. B. Combs
Winston-Salem
North Carolina
Dear Mr. Combs:

Reference is made to letter to you dated August 14, 1958, from Mr. J. H. Cornell, Chief, Fish Division, North Carolina Wildlife Resources Commission, in answer to your card concerning a stream pollution problem in the vicinity of the W. E. Graham Granite Company on Highway 52 near Winston-Salem.

In connection with the above, we appreciate your interest in stream pollution and wish to request the name of the stream involved as well as information concerning the cause of pollution which you reported. We are aware of the fact that the sewage and industrial waste from the City of Winston-Salem and some of the industries in the area are creating a serious pollution problem in Salem and Muddy Creeks. The City is presently in the process of building a new modern sewage and waste treatment plant which will be completed on or shortly after January 1, 1959. This plant, when completed, should provide ample treatment of the waste tributary to it to eliminate the City's problem.

It is quite possible that the pollution you reported is originating from a source or sources other than the City of Winston-Salem. In such case, we should like to have one of our field representatives investigate the problem so that appropriate action may be taken toward having the pollution eliminated.

Thanking you for your interest in this matter and looking forward to hearing from you, I am

Sincerely yours,
E. C. Hubbard, Director
Division of Water Pollution Control

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I enclose $_____; send me WILDLIFE IN NORTH CAROLINA for _____ years starting with the next issue.

Name _____

Street or Route _____

City _____ State _____

Please notify us promptly of change in address

NORTH CAROLINA GEESE

1958-59 SHOOTING REGULATIONS

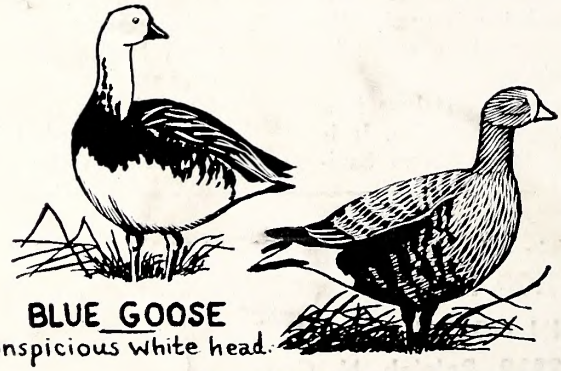
November 17 to January 15
No Sunday shooting
½ Hour before sunrise to sunset
Federal Migratory Bird
Hunting Stamp Required

CANADA GOOSE
(2 birds daily, 4 in possession)

BRANT
(6 birds daily, 6 in possession)

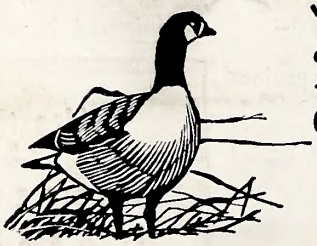
Several other geese are rare or uncommon visitors to North Carolina.

SNOW GOOSE
NO OPEN SEASON



BLUE GOOSE
conspicious white head.

WHITE-FRONTED GOOSE
Dark markings on breast.



You might see one of these with a flock of Canada Geese or Snow Geese.

HUTCHIN'S GOOSE
A small race of the Canada Goose.

J.W. TAYLOR

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Raleigh

DECEMBER-1958

Wildlife

TEN CENTS

in north carolina

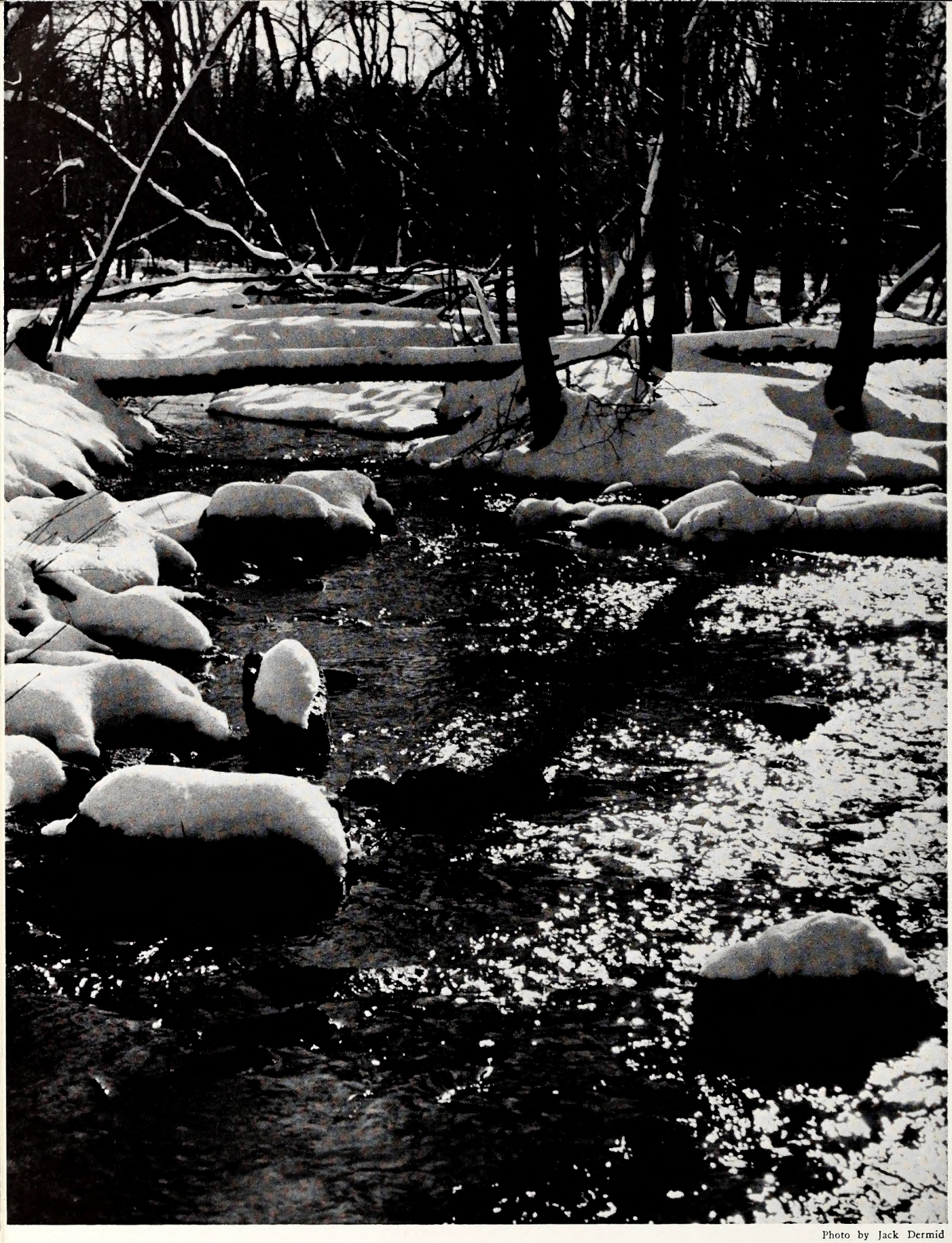

Photo by Jack Dermid

Merry Christmas

. . . and best wishes for many happy days of hunting and fishing during the new year from the Wildlife Resources Commission and its entire staff.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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THURMAN BRIGGS, *V. Chm.* ..... Lexington
ROBERT M. CARR, *Sec'y* ..... Wallace
G. E. BEAL ..... Red Oak
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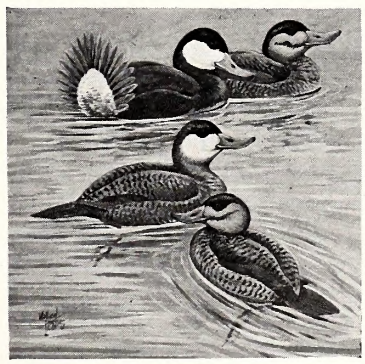

Our December cover painting by Wallace Hughes portrays the pert little ruddy duck in both summer (top pair, male left) and winter plumages (lower pair, male left). Tarheel sportsmen are most likely to see the ruddy in his winter garb, but the pure white cheeks of the male accented by a dark crown make identification easy. The female has the same chunky build, but has brown cheeks. On the water, the male characteristically erects and fans out his tail. In flight, the ruddy resembles a big, tail-heavy bumblebee. Waterfowl hunters should make an effort to learn to identify the ducks, for such knowledge, besides making hunting more enjoyable, will come in handy when regulations restrict the kill of certain species.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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HOW OUR GAME LAWS WASTE DEER

Jack Dermid

By Durward L. Allen

Reprinted From Field and Stream

EVERY deer hunter in a bucks-only state knows the score: Does and fawns are shot by trigger-happy gunners and left to rot, because possessing such a carcass is illegal. Perhaps you've wondered, "Is this illegal killing just a now-and-then thing—or does it amount to serious proportions?"

Well, hold onto your hat. The total of illegal kills left in the woods by hunters is larger than the number of legal bucks taken out! That, obviously, is a shocking waste of venison. It makes the buck law, already under fire, look mighty vulnerable.

Can anything be done about this waste? Well, in Wisconsin the State Conservation Department has been doing a monumental job of fact finding. Here is what its director, Lester P. Voight, says: "When our hunters are able to increase their take-home venison by 250 percent and, at the same time, reduce illegal deer waste by one-third in a single year, we have made a big step in the right direction."

No doubt about it, this was a top job of research. The scene was eastern Jackson County, about 300,000 acres of central Wisconsin's heavily hunted deer range. Stanley DeBoer is game management supervisor in the area, and after the 1956 buck season he went into a huddle with local warden Werner Radke and warden supervisor Chauncey Weitz. All three were fed up with the years of guessing about illegal kills.

They planned something different in the way of a dead-deer count, one that would produce reliable figures on the thousands of does and fawns shot and left to rot every hunting season. The project called for pinpoint accuracy in counting carcasses on a big, representative sample of range. Field men and supervisors from six divisions of the Conservation Department turned out to help. Sportsmen got fired up and joined the parties for long days in the woods. They made it their problem too. They saw the job done; so they know the figures it produced are accurate.

After winter snow was gone in March 1957, the crew went into a standardized formation—a line of men spaced 66 feet apart—and marched over 26 randomly selected courses in 13 townships. It was a sample of 7,684 acres. They found 86 deer carcasses, of which 78 were judged to be illegal animals shot during the season. Projecting these figures for the entire area, here are the conclusions:

In eastern Jackson County, during the 1956 deer season, hunters killed and registered 1,714 legal bucks, or 3½ per square mile. They left more than 3,000 illegal does and fawns dead in the woods, or 6½ per square mile. Nearly two-thirds of the total kill was wasted!

This is the minimum loss. If any carcasses were missed by the census lines, or if any illegal kills were taken out of the woods, it would add to this record of one wasted deer per 100 acres.

With the 1957 hunting season, something was ad-

ded to Wisconsin regulations. In the central part of the state the regular buck season carried an added provision: Any party of four hunters could buy an additional permit for a "party" deer of either sex.

That made a difference! The survey was repeated in Jackson County at the end of winter. The registration of legal kills was 4,287—9 per square mile—two and a half times the legal harvest of 1956. The wastage was calculated at 1,892 (4 per square mile), a reduction of more than a third from the previous year. In 1956 only about one-third of the total kill went home to the food locker. In 1957 more than two-thirds of the shot deer became venison on the table. All by the simple expedient of relaxing a bit on the old bucks-only tradition!

Last spring Stanley DeBoer reported the findings to a local sportsmen's club. "We could have taken still another thousand from Jackson County without reducing our breeding stock—and we could have an even larger herd in 1958."

These sportsmen understood, and they were with him. Stan couldn't help remembering a meeting ten years earlier, almost to the day, at which an old-timer arose amidst loud applause and gave him both barrels: "We don't need no book-educated Bostonian to come in here and tell us how to run our deer! He ought to be tarred and feathered and run out of town!"

Today it pleases DeBoer to realize that "game manager" is no longer a dirty word!

Now for a big question: Over how much country can we apply these figures? In the spring of 1957 deer investigators in Wisconsin were counting the winter accumulation of "pellet groups" over sample courses in about two million acres of their north country. It's a new technique involving sound statistical methods for getting a more accurate inventory of deer herds. Of course, the number of dead deer found was recorded also. The counts for these areas indicated that illegal kills were more than double the harvest of bucks. Of course, old records had shown similar trends, but biologists didn't have a reliable, large-scale job for comparison, and they couldn't hang their hats on small samples.

After the 1957 survey, sportsmen in Eau Claire and Clark Counties (just north of Jackson County) asked for a similar job in their own hunting areas. They furnished 70 percent of the manpower. The party-deer law applied here, and the total kill, legal and illegal, was 8 deer per square mile as compared with 13 in Jackson County. This was a region of lower deer numbers and lighter hunting pressure. The wastage was only half that of the area to the south. In the Eau Claire and Clark hunting ranges in 1957, 82 percent of the kill was utilized.

To sum up, the illegal kill is proportionate to deer numbers and hunting pressure. It takes a big drop under regulations permitting some does and fawns to be harvested. With new facts, game managers are getting their feet on solid ground, and before long they will be able to predict the vension waste in a given area under a buck law or other regulation. Meantime it's evident to anyone that plain, old-fashioned bucks-only hunting is unconscionably wasteful.

Other states have been awake to this problem, but their sampling has not been so large-scale and reliable as the work in Wisconsin. Consider what C. N. Severinghaus, New York's top deer investigator, found in his own neighborhood near Delmar in Albany County. Severinghaus moved his family into their new home before deer season in 1945. In the early-morning hours of a November day two shots pulled the deer investigator out of the sack and to the window. Down the road he saw a spotlight blink out and a car disappear around a curve.

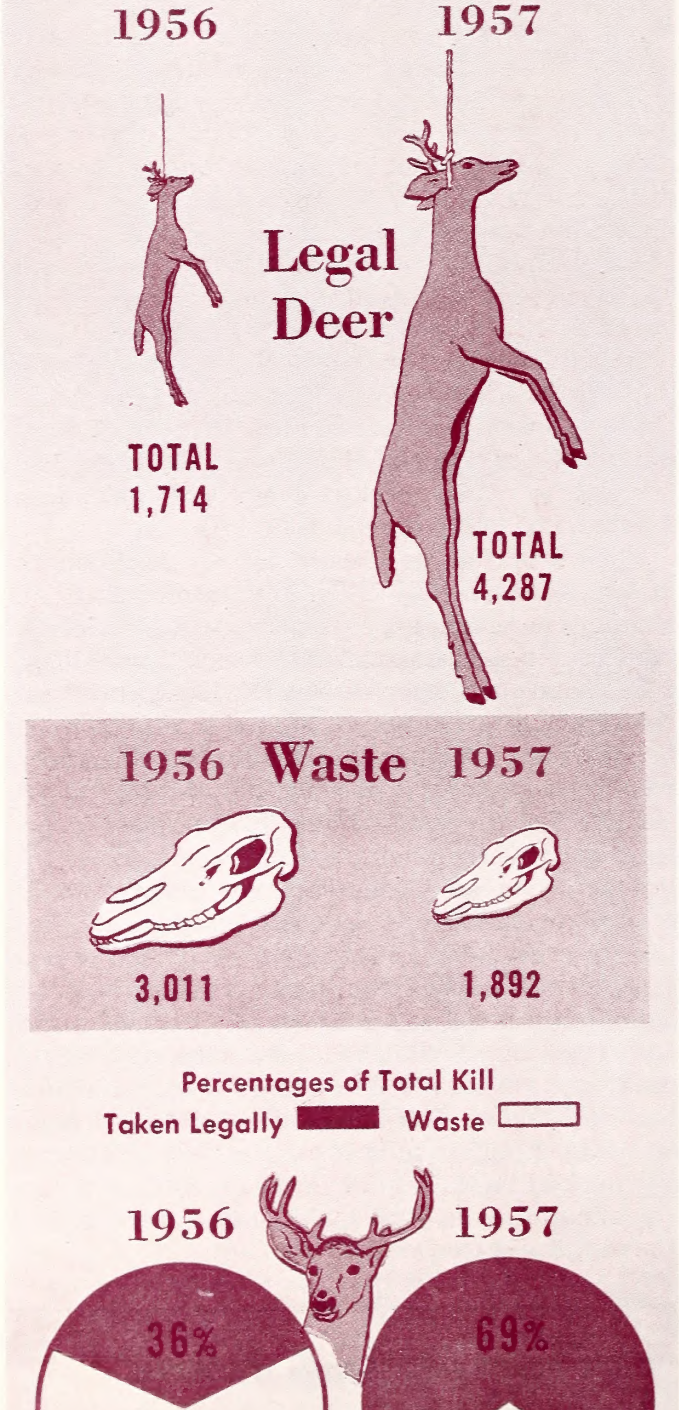
A few minutes later he picked up a blood trail in the snow. He followed it across an orchard, two abandoned fields and another road. After daylight he continued and found a dead doe. This incident got Bill Severinghaus and the local game protector started on a private investigation that they kept up for 10½ years on 10½ square miles. With the help of neighbors they checked every legal and illegal deer kill and every other known loss.

Their total figures account for 101 dead deer, of which 34 were legally taken in hunting seasons, including one either-sex season in 1952. Fourteen of the losses were due to cars and dogs; 53 were illegal kills in and out of open season. Obviously, this year-round job gives a different kind of information, but it is food for thought. Bill Severinghaus' neighbors were well aware of occasional deer killing outside the law. But they had no idea how it added up and were amazed when he told them. Aren't we all!

Several years ago Severinghaus made the most of an opportunity to extend his deer-kill investigation to other parts of Albany County. He learned that a state gypsy-moth survey was to be made from November 25 to December 24. The buck season ended November 30. The crews, working at maximum intervals of 100 feet, agreed to record all deer carcasses found. The illegal kill of does and fawns was 1.9 per square mile in an area where the average buck kill was less than 1 (0.82). Again, this was the minimum loss. And again, at least two-thirds of the hunting season venison was lost.

"Every deer hunter knows the score:
Does and fawns are shot by trigger happy gunners and left to rot, because possessing such a carcass is illegal."

LEGAL DEER AND WASTE
in eastern Jackson County, Wis.



When I talked with Bill about these jobs, he was emphatic—even a bit worked up—on one point. "I'd like to be perfectly clear on the fact that these illegal kills are absolutely no reflection on the game protector in our county or anywhere else. There are no more efficient and hard-working men anywhere, but you just can't trail every potential violator."

Everyone who knows the situation will agree. In many a northern headquarters I have been these officers come in during deer season at 2 a.m. and leave again before 5. They do all any human could do, and the answer to this irresponsible killing is not better enforcement or more enforcement. It is more sensible regulations.

Game administrators and warden supervisors have long recognized this, but the public isn't so realistic. For this reason many states have been reluctant to stir up a fuss over the scandalous manner in which our deer harvest is being wasted. Too often the public would blame the enforcement men, not the faulty laws on which responsibility ultimately rests. So the game officials keep quiet.

But it's a state of affairs that won't last. Many Wisconsin wardens were in the thick of the fact-gathering, and DeBoer paid this tribute to them: "These men have cooperated up to the hilt, willing to base their actions on facts without prejudice, and to work for better management regardless of who collects the credit."

As suggested previously, a big bottleneck in getting figures on illegal kills is lack of sufficient manpower for the big sample areas that must be covered. How hard it is for a few workers to get a total count was pointed up by a recent job in Michigan. During the open season four game division biologists interviewed gunners on the heavily hunted Gladwin and Rifle River Game Areas. They got reports of 23 illegal kills and then located the carcasses. In each case they cut the ears from the deer and marked it with a tag.

After the season another group of field men tracked foxes for 319 miles through these two study areas. They also marked and numbered all carcasses found. The fox trackers located 17 of the previously marked deer and 23 new, unmarked carcasses. Fox trails led directly to most of the kills. It was plain enough that foxes find and feed on many more dead deer than are seen by hunters or biologists.

Amusing sidelights on human nature emerge when you do some post-season sleuthing on an area ransacked by an army of deer hunters. One of the Wisconsin survey crews found an 80-acre tract completely rigged for hunting the easy way. There were ten brush blinds, with seats. There were numbered, radiating shooting lanes brushed out cleanly for 150 yards. There were salt blocks. It looked like a rental service and wardens took careful note.

Elsewhere, excited hunters had left three fine knives at deer carcasses, and there were plenty of unused rifle cartridges, probably dropped by stiff fingers on a cold day. The archery season was popular in the area, and more than seventy arrows were picked up.

The new knowledge of illegal kill doesn't call for a simple chucking of the buck law. J. R. Smith, Superintendent of Game Management in Wisconsin, called it right when he said, "We are especially interested in developing flexibility in our deer regulations. This would permit us to fit the potential harvest to specific needs in different areas of the State. We are approaching this pattern through the use of special either-sex seasons and the party-deer regulation."

This flexibility is needed everywhere, and certainly the job can't be done in legislatures. The real hamstringing of management comes in states where the legislature withholds authority from the conservation commission and enacts a flat-out buck law for large regions.

Biologists have long known that under these conditions legal hunters consistently take less than 10 percent of the herd. They know also that in most deer herds the total annual turnover is about 40 percent—four out of ten deer that are alive each November will be dead and replaced one year later. Obviously, if the hunter gets only one of the four, he is coming out short.

In contrast with these conditions under the buck law, game men point to states where any deer has always been fair game—New Hampshire, Main, Minnesota, Idaho. They also cite several Western States that got rid of their bucks-only strait-jackets and set up varying regulations for different regions, even going to multiple bag limits to insure better cropping in the back country. Notable in this respect are Colorado, Utah and Washington.

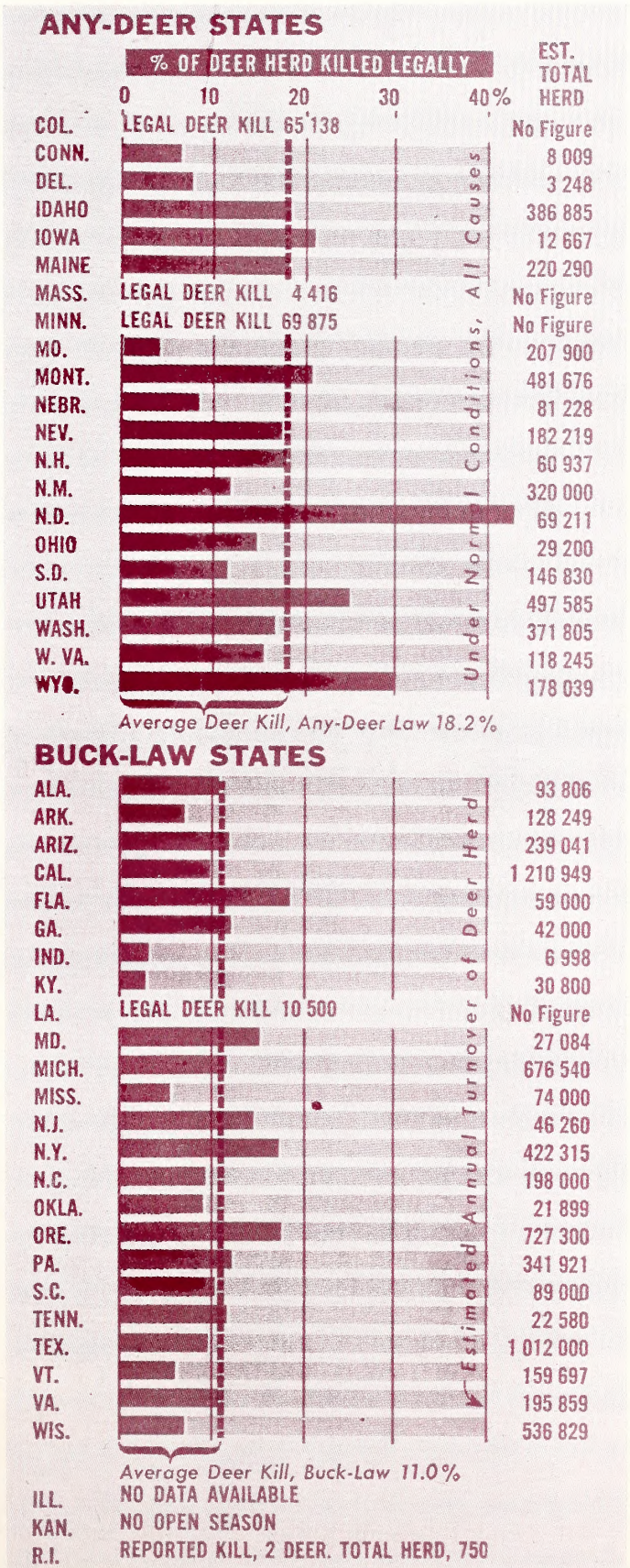
These states with liberalized regulations are taking around 20 percent of their herds annually. They are doing it year after year, and it keeps the food supply on winter ranges in far better shape than formerly. It works because thinned-out herds are healthy. They make up for the heavier kill by producing larger fawn crops.

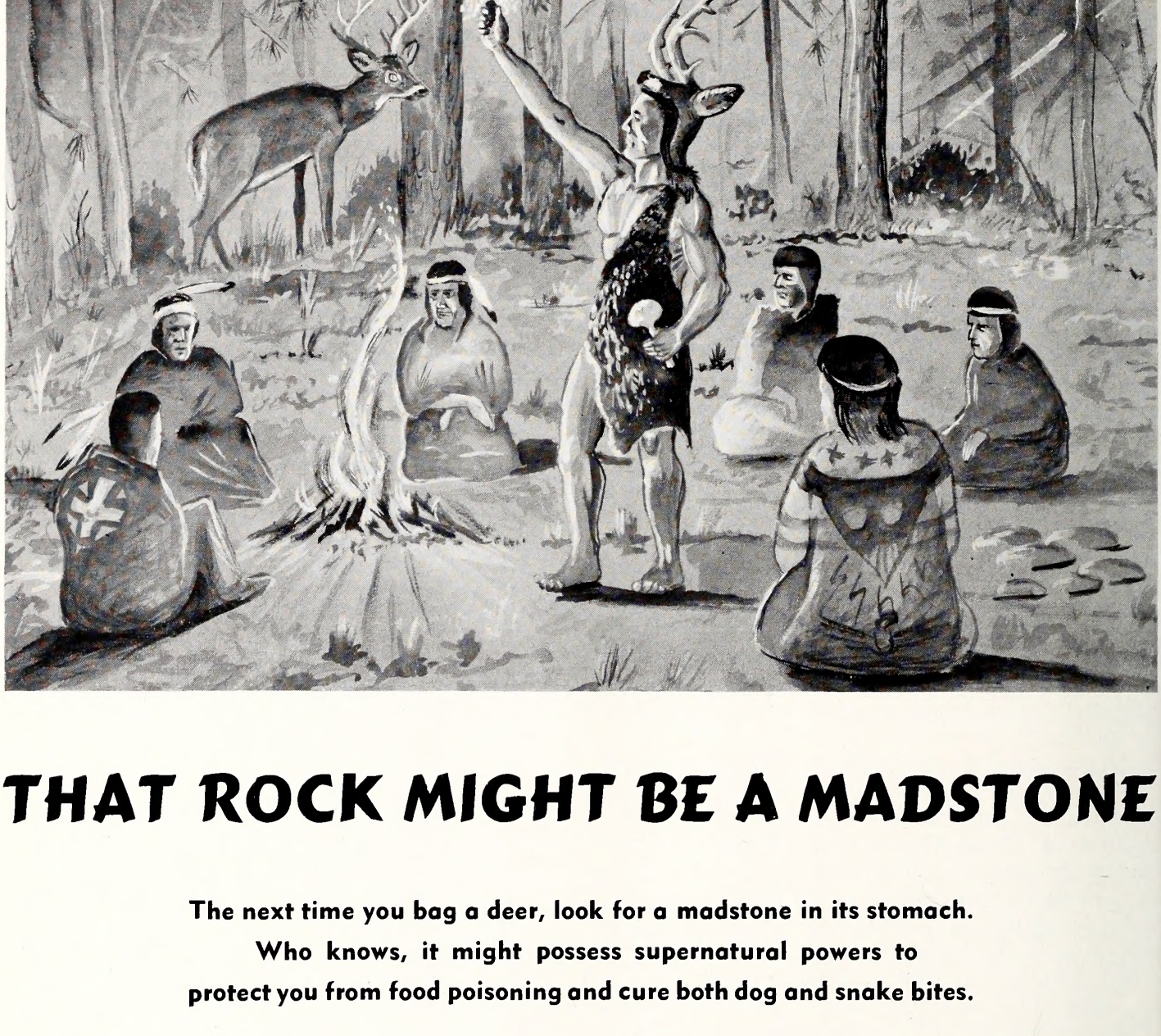
What the specialists didn't know—for sure—is that in large areas of buck-law hunting range the deer were being killed anyway. The carcasses were left in the woods, while many people deluded themselves that they were "saving" the herd because does and fawns weren't legal.

The truth will out. And the rigid buck law will disappear. It's only a matter of time. But every year of delay means a further squandering of a valuable resource. In backward states it's time for sportsmen to pin down responsibility and get an answer to a vital question, "What are we waiting for?"

LEGAL DEER AND WASTE in the United States

All figures are for 1956 season. Total herd figures include whitetail, mule deer, and blacktail.





THAT ROCK MIGHT BE A MADSTONE

The next time you bag a deer, look for a madstone in its stomach. Who knows, it might possess supernatural powers to protect you from food poisoning and cure both dog and snake bites.

By Jim Keefe

Illustration by Duane Raver

IN the American highlands, lots of folks will tell you of the wonderful madstone that will fasten itself to the wound of a mad dog bite and hang on, drawing out the poison, to fall off when all of it is absorbed. It's a nice tale, and one that has been around a long time.

A madstone is only one of the names for the stones found in animals such as deer, and occasionally in plants—interesting objects that have captured man's fancy since prehistoric times. Old wives' tales give them fanciful reasons for being and even fancier cures have been claimed for them. The famous "bezoar" stones from the Orient were worth a king's ransom because a king could depend on one to protect him from the poisoner's art. Bezoars were objects taken from the stomachs of goats and gazelles in the Middle East and Orient. Potentates of the day paid fabulous prices for real ones. They were often richly ornamented and were used to dip into wine or to touch food that might have been poisoned. Powdered bezoars were highly regarded as cures for jaundice, intestinal worms, plague, melancholy and you-name-it.

Proof of their value is the record of grateful acceptance of a bezoar by Napoleon, as a gift from the Shah of Persia, in 1808—a royal gift befitting one monarch to send to another. Even in fairly late times a madstone sold for $250—in Texas, 1879.

The madstone used to treat mad dog bites was sometimes claimed to have curative powers against snake bites, too. To recharge a stone after use one simply soaked it in sweet milk, on which the discharged poison formed a greenish-yellow scum.

Such stones in humans are known as gallstones, kidney stones, uroliths, enteroliths and a host of fancy names. The most common term for these stony bodies found in the animal's innards is calculi, since many are composed of some form of calcium. Others contain magnesium, phosphorus or other minerals. Ruminants, such as deer, commonly produce such stones.

The famous bezoar stones of the Dark Ages were not stones at all, but solid balls of hair, firmly cemented with organic matter that gave it a tough leathery cover. Some contained vegetable fibers.

The American Indian attached special significance to the stones (real ones) found in deer stomachs, and the ear stones of the freshwater drum are often found in old Indian campsites. They, too, apparently had some magical significance.

The stones found in animals like deer are almost always formed around some foreign object. Such items found in the center of madstones are pecans, .22 bullets, nails and wood slivers. Possibly the foreign body sets up an irritation about which mineral salts gather in concentric layers until a stone of some size is formed. Stones have been found in a great many different kinds of animals: mice, deer, mules, horses, guanacos, cows, dogs, men, rats, rabbits, whales, elephants, birds, lizards and even hippopotami. Sometimes stones are fatal but usually the animal enjoys good health despite their presence.

Not all the stones found in animals were formed there; occasionally stones are found that could only have been ingested, accidentally in most cases. Stones found in bird's crops are usually deliberately taken as aids to food digestion.

Among some back-country Americans the most highly-prized madstone is one taken from the stomach of an albino deer. The albino has always attracted special attention and a madstone from one is very hot stuff, indeed. One source lists only three genuine madstones in the United States today. The most famous one was brought into this country in 1776, from Scotland. Legend has it that 130 cases of mad dog bite were successfully treated with this stone, with not a single case of hydrophobia resulting. Personally, I'll take Pasteur.

One last type of madstone comes not from an animal but a plant. It is a form of opal found in the joints of bamboo canes growing in Hindustan and Burma. A juice, probably high in silicates, is gradually changed by evaporation to a mucilaginous, then a solid substance and the stone, known to rockhounds as tabersheer, is formed.

The legends of the madstone's power to protect the possessor from poisoned food or the bites of mad dogs or rattlesnakes can be taken or let alone—as the reader desires. It would be a good idea, though, next time you bag a deer, to look for a a madstone in its stomach. Who knows? It might really work!

Jug Fishing

Photo Short by Darrell Louder

Fisheries Biologist

FISHING with floats, such as large corks, wood chunks, tin cans, glass jugs, metal cans, or plastic floats is an enjoyable sport and pastime. Fishing by this method will produce good catches of catfish and put meat on the table, not to mention the fact that it can be enjoyable recreation.

"Jug fishing," as it is called along the Mississippi River and its tributaries, is a popular sport for both young and old. For big catches of catfish, get about twenty to fifty of some type of the above mentioned floats and head for your favorite river. This many floats will give you a full-time job keeping them baited and the fish removed. Place the bait in the water suspended at the depth at which the catfish are feeding. This can be determined by first setting the hooks at various depths until you discover where most of the catfish are biting.

Once the proper depth is found, place all of the hooks at this level and the fun will begin. Aside from being an enjoyable sport, this method can be used as a management tool in aiding game fish populations by the removal of rough fish from a stream; in other words, more game fish to tug at the end of your line in years to come.

Some of the preferred baits are cut fish, such as mullet; meat chunks; and "stink bait." The last mentioned can be purchased commercially and consists of blood, cheese, cotton-seed meal and other ingredients.

Don't think for a moment that you will have time to rest, because if the catfish are feeding you will have all you can do tending floats. Don't forget to bring along a frying pan, grease, cornmeal and slaw so that you can enjoy some of the freshly-caught catfish on the spot—you'll need it after a busy day of float fishing.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Council of State Approves Caswell Purchase

The Council of State recently approved the purchase of the 14,037 acre Caswell County Wildlife Management Area by the Wildlife Resources Commission from the U. S. Forest Service for a price of $891,262.57. Three fourths of the funds will come from the federal government under the Pittman-Robertson act, and payments will extend over a period of ten years. The area will be developed for public hunting and field trials.

Currituck Saved (?) Again

The Virginia State Soil Conservation Committee has agreed to delay action on draining a swamp in Princess Anne County into Back Bay and Currituck Sound. Dredging operations necessary to the drainage project are believed by wildlife interests to endanger both Back Bay and Currituck Sound by creating a serious problem of siltation from colloidal clay. The drainage project will be postponed until the U. S. Soil Conservation Service and the U. S. Fish and Wildlife Service agree on the most acceptable means of draining the area without endangering wildlife resources. An alternate proposal is to raise a dike at the southern end of the area so that drainage water would be channeled into the Atlantic Ocean through Rudee Inlet near Hampton Roads.

1959 Fishing Regulations Ready January 1

The 1959 fishing regulations, published by the Wildlife Resources Commission, will be in the hands of fishing license dealers by January 1, 1959, when the new regulations become effective. Only minor changes were made over 1958 rules.

Deer Repellent Advised for Tree Planting

Persons planting trees in areas where deer are numerous and where young trees are apt to be damaged by deer are advised by Wildlife Commission to dip or spray the seedlings with a commercial deer repellent, and make tree plantings as late in the season as possible. Although deer repellents are not 100 percent successful, they have been found to be highly effective in many cases.

Multiflora Rose and Lespedeza Seedlings Available

The Wildlife Commission has about two and one-half million multiflora rose seedlings and between five and six million bicolor lespedeza seedlings now available for free distribution. Applications should be made to County Extension Agents, District Soil Conservationists, or by writing to the Wildlife Resources Commission, Box 2919, Raleigh.

WHEN 40 BEAGLES ARE FREED IN SCOTLAND COUNTY

Run, Rabbit, Run

Photo Feature by Jack Dermid

"WHEN the boys down in Scotland County go rabbit hunting, they go in a big way," boasted Wildlife Protector Leroy Bostick. "Why forty beagles strung out along a ridge are a sight to behold and forty voices blended together make hound music without equal. Come see for yourself."

Before Bostick had finished his colorful description, I began packing cameras and making arrangements. Who could resist such an invitation?

The hunters were just beginning to gather when I arrived, and Capt. W. G. Meadows and J. E. (Jimmy) Lee of Laurinburg, owners of the beagles, were there to greet me.

"No hurry," said Capt. Meadows, "the ground's frozen as hard as a bullet. Let it thaw out a little so a dog can smell."

While we waited, tales were spun about the exciting rabbit hunts held every Saturday in Scotland County—and on as many other days as the hunters can arrange them. For example, Bob Lee, who just joined us, loves rabbit hunting so much that he took 15 days of his vacation last season to go (an interview with his wife might prove interesting). Soon Ed Hearn, Jessie Snead, and Shaw Currie arrived to complete the party, and Protector Bostick dropped by to see we got off to a good start.

As the beagles poured from their trailers, I had the thought that such a large pack of dogs was comparable to a vacuum cleaner designed to clean up every rabbit for miles. But 40 beagles hunting in a bunch apparently don't produce much more shooting than a half-dozen hounds. In either case in good hunting territory, a rabbit will soon be jumped, and then all dogs join in the race. Forty dogs make the race more spectacular, and sometimes more confusing when the pack splits to have more than one race going at the same time. Then, it takes fast moving for a hunter to be at the right place at the right time. And any hunter can imagine what happens when 40 beagles take off after a sneaky marsh rabbit in a thicket of cane and catbrier.

These Scotland County hunters have been hunting the same general area for years—and rabbits remain abundant. The key to the sustained population is ample food and cover and the fact that the hunters do not overshoot any farm. The rabbit population bounces back under the combination of good living conditions and ample breeding stock.

Turn the page to see Little Bit, Adam, Lucky, Caledonia, Ring, Idea, Lost John, Black Diamond . . . and many more beagles in action.

There is always a lot of stretching and sniffing before a hunt gets underway. The hunters take stands along the edge . . .

. . . of a woodlot. Soon a rabbit breaks and the dogs string out in line too long for the camera to show in one photo.

Run, Rabbit, Run (Cont.)

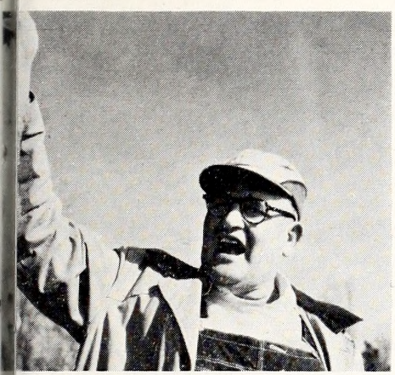
The tantalizing trail had disappeared. Was it marsh rabbit?

Stanback removes a brier.

Charlie has visions of rabbit stew.

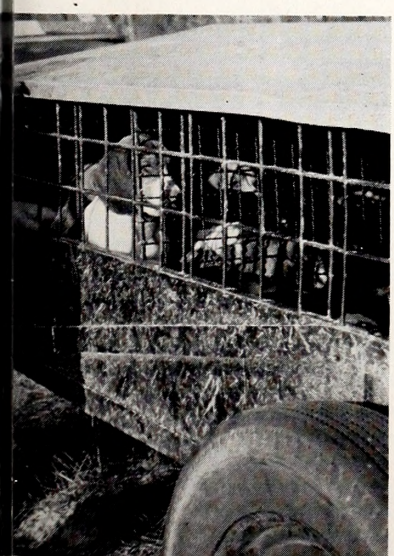
Ed Hearn blew on his gun barrel to call the scattered dogs.

After the hunt
Then, to be su



unny doubled back and made the
te of coming too close to Jimmy
. Here he is! Here he is!" yells Jim-
id the beagles appear from every-
in a frenzy of excitement.

e time to round up all the hounds.
resent, Jimmy counted noses twice.



Currituck's Little CHAMPIONS

By Kenneth A. Wilson
Fur Resources Investigator
Photos by the Author

EDITOR'S NOTE: The Wildlife Commission has recently published an interesting and informative bulletin on how, when, and where to trap, with tips on handling pelts and marketing: TRAPPING NORTH CAROLINA FURBEARERS by Kenneth A. Wilson. Single copies will be sent free upon request.

Billy and Jeffrey Tice return home after a successful day of tending traps in the marshes of Currituck County. Every day on the trapline was an exciting experience for them, and they were getting a sound education in the ways of wildlife and an appreciation for the out-of-doors that would last forever.

"SHE'LL catch cold, all right, but that's all she'll catch! And she'd better not try to break up our team." And she didn't. So on December 15, 1957, the first day of the trapping season in Currituck County, the line-up looked like this: the boys were partners and Marcia trapped alone.

Traps had been set the day before and that night the tired youngsters went to bed early. Excitement plagued their sleep. You've heard of people counting sheep to get to sleep. Well, Billy counted muskrats. And when sleep finally came, he dreamed about them. Great big furry muskrats! The sun hadn't yet poked its head above the Atlantic Ocean when the youngsters hurriedly pushed away from the breakfast table, bid Mother and Dad goodbye, and started for the trapline.

Golly, what excitement! Strong northerly winds off Currituck Sound chilled their frames. Two large flocks of geese honked far overhead as they winged their way toward Moyock for breakfast in some farmer's field. A huge barge loaded with pulpwood cut through choppy waters along the Inland Waterway, headed for some northern city. Miles to the east an undulating and seemingly endless flock of red-wing blackbirds hung like wavering rope over Knotts Island. A noisy jet catapulted through flake-white clouds overhead, a tiny vapor trail marking its path. These sights and the sudden realization of events soon to come caused the young trappers to forget the sting of icy winds. And then they arrived at the traps.

Billy and Jeffrey are cousins and Marcia is Billy's sister. They live in comfortable homes overlooking beautiful Currituck Sound. Their fathers, James and Rogers Tice, are farmers. In the fall and winter months they guide waterfowl hunting parties and trap muskrats. The youngsters attend Sunday School at the Pilmore Methodist Church and go to Currituck School at Currituck Courthouse.

Marcia, age ten, weighs 60 pounds and is in the fifth grade; Jeffrey is eight years old, weighs 64 pounds, and is in the second grade. Billy is six years old, weighs 49 pounds, and is in the first grade. I did not interview their teachers, and didn't see their report cards, but if they love school like they love trapping then the honor roll is a cinch for each of them.

Before returning to the trapline with our young friends, a few things need explaining. During the 1956-57 trapping season Jeffrey trapped two muskrats and Billy was his helper. Despite remarks concerning the inadequacies of little girls, Marcia

tagged along too on occasions. That year all of them learned from their fathers how to set a trap. It was then that Marcia decided that she would trap. She needed some money for her undernourished piggy bank. Furthermore, she had not gotten over those sarcastic remarks. When the cocky boys heard of her decision, they laughed.

On the first day of the 1957-58 season the boys caught one muskrat and two barn rats. The barn rats were drowned but the muskrat, a large three-pound male was alive. In the excitement of drowning it Jeffrey stumbled into water over his boots and Billy fell in. Marcia greeted them on the front porch with a few well-chosen words and copious smiles. She had also caught a muskrat and drowned it—without getting wet!

Both boys enjoyed a hot bath, put on dry clothes, ate a good meal and dutifully listened to a five-minute lecture by their respective mothers. They were in the doghouse, all right. That they didn't mind. What they did mind was Marcia's taunting jeers. And to make matters worse, they had to spend more than an hour in the henhouse weighing and sorting eggs while their female rival enjoyed television.

Marcia Tice, 10, proved to be tougher competition than the two cousins bargained for. One day she caught a gray fox.

During the Christmas holidays the boys caught eight muskrats and five barn rats while Marcia trapped four muskrats. The worthless barn rats were thrown away. Very cold weather in January and February froze traps solid for days. This made the young trappers unhappy but they ran their traplines anyway. In fact, that was the first thing they did every afternoon after school. Although ice and cold weather failed to stop them, rain and flooded ditches did. On these occasions time was spent in Jeffrey's cellar, practicing trap setting.

No trapper gets through a season without some unusual experience or a close shave. On one occasion the boys suddenly came face to face with a very cross marsh hawk—in a trap. Caught by a toe, the hawk was taken alive from the trap. This was no easy feat for two boys whose combined weight totaled only 113 pounds. Billy gripped the big bird's leg with all his might as the lads hustled home to surprise their parents. But the hawk with a white patch on his rump had other ideas. And so after violent flapping of wings—wings that spread nearly four feet—and a near miss from the hawk's hooked beak—the spunky little shaver let go of the big bird. That night at the dinner table Billy was asked to explain a bloody scratch on his nose. "No, Mother, I didn't have a fight. A hawk we captured escaped. It reached over with its claws and tried to grab my nose."

More experiences followed. One Saturday following a week-long cold, Billy joined his pal on the trapline after this parental advice: "Be careful and don't get your feet wet." However, they hadn't looked at a dozen traps when it happened. Yes, that's right— he fell in. Not just up to his hips but all over. Visions of a spanking and the rest of the day in bed saddened him. But Jeffrey had a plan.

Billy (left), 6, and Jeffrey Tice, 8, were partners during the trapping season. Here they display part of their fur harvest.

They hurried home, sneaked upstairs—no one saw them—and within minutes, after a quick change to dry clothes, Billy and his partner returned to their beloved trapline. Fortunately sickness did not return. But that night, when Mother discovered a pile of soaking wet clothes under the bed, our little champ had a lot of explaining to do.

Marcia had some hair-raising experiences, too. One day she caught a fox. For a minute her heart went thumpety-thump. Then she saw that it was dead. In her excitement she dragged the nine-pound fox, trap and all, home to show her parents. On another occasion a big muskrat was interrupted in shallow water while feeding in a ditch. The little girl said later, "I rushed up and tried to pin it down with my boot but it escaped down the ditch—jumping in and out of the water like a fish." Her closest shave occurred when a big muskrat jumped at her from some bushes, its sharp teeth grazing her boot. Luckily for Marcia, the big rodent was in a trap.

March 10 was in a way a sad occasion for our little champions. On that day the trapping season ended. Like all conservation-minded trappers, however, they also wanted to leave plenty of mama muskrats to produce a big catch next year. So without a bit of grumbling, they pulled their traps.

When the fur was tallied, this is what they had caught: Billy and Jeffrey had 17 muskrats, 10 barn rats, and a marsh hawk. Marcia caught 9 muskrats and a gray fox. The barn rats and the fox had no market value. The boys' fur brought $15.00 and Marcia's $9.75.

Everyone agrees that this is not too much money. But our story does not end here. This year our little champs plan to trap again. They will be bigger and stronger and wiser and they will catch more fur. As they get bigger, they will be allowed to trap part of their fathers' 1000-acre marsh. A boat with an outboard motor will be part of their equipment. Instead of yields of a few muskrats, they will catch hundreds—and other fur will include raccoon, otter, and mink. Most of the money earned this year is stowed away in piggy banks and this, with money yet to be earned, will help put our little champions through college.

A young trapper gets a lesson in preparing a muskrat pelt. Fathers of the youngsters, James (shown) and Rogers Tice, are farmers who work as guides during the waterfowl season and manage their own marshes for muskrat and mink production.

PROTECTOR OF THE MONTH

Gilmer S. Forbis

Mr. Forbis was born on September 21, 1933, and attended school in Parkton and Red Springs, North Carolina. He also attended the 1955 Session of the Wildlife Protectors' Pre-Service Training School at the Institute of Government in Chapel Hill, North Carolina, and was appointed Cumberland County Wildlife Protector in October of the same year.

Mr. Forbis is a member of the Lumber Bridge Presbyterian Church, as well as the Loyal Order of the Moose.

ENFORCEMENT RECORD FOR OCTOBER

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of October, 1958.

Persons checked	37,742
Total prosecutions	579
Total convictions	558
Total cases not guilty	3
Total cases nol prossed	18
Total fines collected	$4,068.70
Total costs collected	$4,100.07

IT'S THE LAW!

Question: Under what circumstances may a nonresident hunter transport game birds and animals?

Answer: A person who is a nonresident of the State and a holder of a valid nonresident hunting license, may, under a permit issued by the Executive Director, transport within this State, or from a point within to a point without, during the open season therefor, game birds and game animals or parts thereof lawfully taken by him, but he shall not transport out of State during any one open season more than two male deer and two wild turkeys, or during one calendar week more than two days' bag limit of other game animals and game birds.

Dr. Joseph P. Linduska, prominent biologist and writer from Chestertown, Maryland, was principal speaker at the banquet.

NORTH CAROLINA WILDLIFE FEDERATION

1958 Convention Highlights

by Thomas W. Reese
President, N. C. Wildlife Federation
Photos by Jack Dermid

THE October meeting of the N. C. Wildlife Federation at Hickory was one of the biggest and best ever held. The scene was Hickory's Community Center, with delegates staying in hotels and motels throughout the city.

First order of business the annual luncheon of officers and directors with a discussion of items to be brought before the convention. Following the luncheon was first business session. Rod Amundson reported on national wildlife week, and was appointed co-chairman with Scott Hanna of Hickory for next year's Week, when conservation education in the schools will be stressed. A number of committee reports were heard, and President Turner Battle appointed committees to carry on convention business and to report the following day.

President Battle commended wildlife clubs for commendable work in various conservation issues pertaining to wildlife during the past year. The organization of junior wildlife clubs was discussed, and it was reported that only one had been formed. That one is in Nash County.

At a 4:00 p.m. directors meeting it was agreed to continue plans for hiring a suitable man to serve as a paid executive secretary, and resolutions were reviewed for presentation at the Thursday business

Business meetings of the convention were well attended, and many resolutions concerning natural resources were passed.

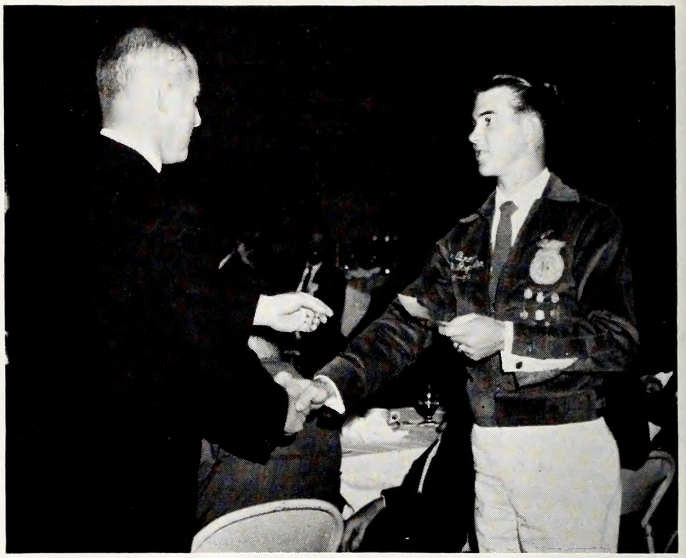
meeting.

The annual banquet was held at 7:30 p.m. with 210 persons feasting royally on the Hickory Moose Lodge's famous smorgasbord. Fred Frick, past president of the host Catawba Club, served as master of ceremonies. After an invocation by the Rev. Billy Joe Leonard, Lexington, Hickory's Mayor Donald S. Menzies welcomed the delegates. Various officers of the State and National Federation were introduced by Battle, who also introduced members of the Wildlife Resources Commission and Director Clyde P. Patton, who in turn, introduced Commission personnel.

A prize of one hundred dollars was awarded to Joseph T. Brown, Todd, North Carolina, for outstanding work in wildlife conservation. Brown, who was accompanied by his parents and FFA advisor, is a member of the Beaver Creek chapter of FFA.

James Connelly of Morganton, Chairman of the Wildlife Resources Commission, presented the Governor's Award to the Buncombe County Wildlife Club for outstanding accomplishment in the field of conservation during 1957-1958. The award is donated by the Sears Foundation, and goes each year to the outstanding wildlife club, based on club activities presented in a scrapbook.

Troy Sigmon, wildlife protector in Columbus County was awarded an engraved plaque for being chosen Wildlife Protector of the Year. Bud Jackson, field representative of the National Federation was introduced by Roland McClamroch. Following his address Major J. L. Murphy, Kill Devil Hills, presented plaques to P. K. Gravely, Rocky Mount; Staton Inscoe, Raleigh; Roland McClamroch, Chapel Hill; Dr. Herbert Fox, Durham; S. I. Stewart, Greensboro; Ralph Daniel, Durham, and Turner Battle, Rocky Mount. All are past state presidents of the Federation.



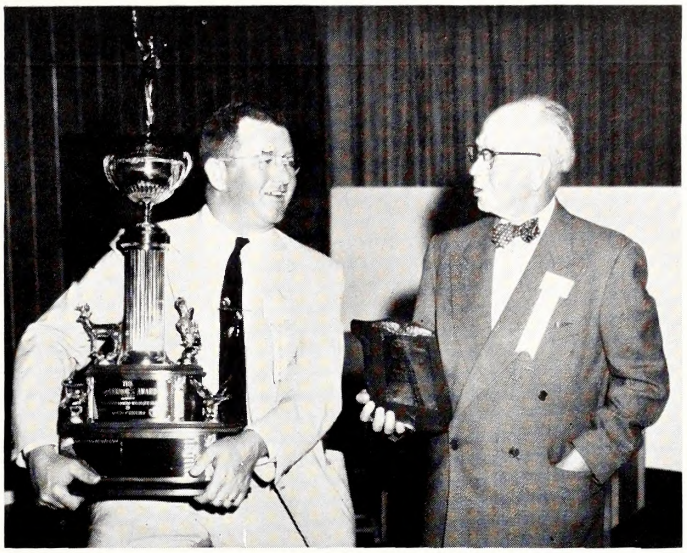
Turner Battle (left), Federation President, is shown presenting a $100 award to Joseph Brown, Jr., FFA member from Todd, for his outstanding accomplishments in conservation.

James P. Yount, vice president, introduced Dr. Joseph P. Linduska, director of wildlife management on Remington Farms, Chestertown, Md., who discussed conservation research on the Remington experimental farm.

The final business session was held Thursday morning. The following resolutions were passed: (1) Favoring the Wilderness Bill; (2) Asking for reelection of Major J. L. Murphy as regional director and Roland McClamroch as vice president of the National Wildlife Federation; (3) Favoring Congress withholding federal aid for drainage when wildlife would be damaged; (4) to strengthen the

Leaders in conservation. Past presidents of the North Carolina Wildlife Federation were presented engraved plaques in appreciation for their accomplishments. They are (left to right) P. K. Gravely, Rocky Mount; Staton Inscoe, Raleigh; Roland McClamroch, Chapel Hill; Dr. Herbert Fox, Durham; Wildlife Commissioner S. I. Stewart, Greensboro; Ralph Daniel, Durham; and Turner Battle, Rocky Mount. Not present was Forest Heath, who lives in New York. Two other past presidents, Col. Frank Page and the Rev. Wayne Williams, are now deceased.

Protector Troy Sigmon, Columbus County, was chosen PROTECTOR OF THE YEAR and received an inscribed plaque for "the extra work 'after hours' contributed in the cause of conservation.



Buncombe County Wildlife Club received the annual Governor's Trophy for being the outstanding club in North Carolina. The award was accepted by Bud Austin (left) and Bill conservation."

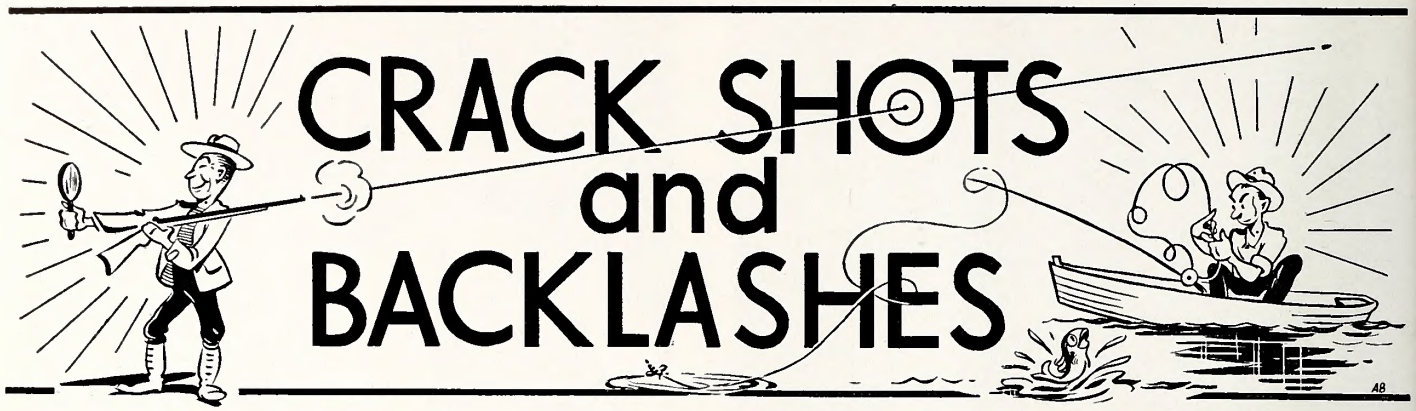
Federal Pollution Control Act; (5) to amend the Federal Power Act to protect fish and wildlife; (6) For Congress to stop the application of chemical pest control by Federal agencies until safe methods are devised; (7) to commemorate the late Rev. Wayne Williams of Asheville; (8) Thanks to the Catawba County Club for an excellent convention; (9) That proper boating safety regulations be enacted by the State of North Carolina; (10) That the U. S. Forest Service be asked to enforce their regulations in regard to timber cutting to protect the trout fishing streams.

Officers elected for the year 1958-59 were as follows: President: Thomas W. Reese; Vice President, Frank Kugler; Vice President-Central, D. L. Goforth; Vice President-West, N. C. "Bud" Austin; Secretary, Dr. George Heinitsh; Treasurer, B. K. Lineberger; Representative to National Wildlife Federation, Turner W. Battle and the alternate, Major J. L. Murphy.

Despite "Bud" Austin's attempted bribery with delicious mountain apples, the convention voted to accept the Time and Place Committee's report and hold the next convention in Pinehurst in 1959.

A registration of 139, the excellent turnout at all business meetings, the wonderful hospitality of the Catawba County Club, and a keen interest in the work of the Federation by those present, made this one of the most successful conventions held by the Federation.

New federation officers elected were: (left to right) Dr. George Heinitsh of Southern Pines, secretary; D. L. Goforth of Greensboro, vice-president, central district; N. C. Austin of Asheville, vice-president, western district; Thomas W. Reese of Hickory, president; and B. K. Lineberger of Hickory, treasurer. Not shown is Frank Kugler of Washington, vice president, eastern district.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Troy Sigmon, Chadbourn, is the Columbus County wildlife protector. More than that, he is the Wildlife Protector of the year. Last October at the N. C. Wildlife Federation's convention at Hickory, Sigmon was awarded a plaque by the Federation for being the outstanding wildlife protector in North Carolina.

There are 111 county wildlife protectors, eighteen patrolmen and nine supervisors. Selecting a single individual from such a large group was no easy task, as members of the Federation who did the judging will tell you.

Officials of the Wildlife Resources Commission understandably wanted no part in making such a choice. Here is how the selection was made: A meeting of wildlife protection personnel was held in each of the nine districts. The men in these districts selected from among themselves a candidate for the award honor. Each of the nine supervisors wrote a letter to the Federation stating reasons why the man from his district should receive the award. There is where the fun began. All of the letters were so enthusiastic that the judges had a great deal of difficulty in making the final choice.

The Wildlife Commission is proud of its men, and pleased that the Wildlife Federation took this means of expressing our sportsmen's appreciation of the fine work our wildlife protection personnel are doing.

Over the years we have made frequent references to the almost unexploited sport of marsh hen shooting. Bill Daughtridge of Rocky Mount concurs:

"Dear Sir:

"Due to the article in the September issue of WILDLIFE and to your letter of September 18, four of us in Rocky Mount went to Southport on Sunday the 12th and hunted the Clapper Rail on Monday. I must say that the Rail is truly under hunted. We all got our limit in a very short order and saw hundreds of others. They are extremely plentiful.

"Captain Henry Bowmer, the area Wildlife Protector, was very kind and helpful in arranging our hunt. We certainly appreciated his efforts in arranging guides, location, and etc. Without his cooperation we as strangers to the area could not have hunted at all, much less had such a fine hunt.

"James Buffaloe, a former wildlife protector, at present a Justice of the Peace; Jack Bishop of Ferrebe & Bishop Advertising Company; Mike Zeets, Federal A.C.C. officer, and I made up the party. We stayed at a motel on the water front and ate in the restaurant next door.

"All in all, we had a wonderful time and most of us would like to make another trip to Southport. Especially to take our wives because of the ideal lodging, eating, and hunting conditions, not to mention the fine hospitality.

"Thank you for your fine cooperation.

Yours truly,
Bill G. Daughtridge,
Rocky Mount"

Johnson Harriss of Wilmington points up a topic that is a subject of much misunderstanding and frequent discussion among dove hunters.

Dear Sir:

The completion of the first week of the early Dove season is at hand and, as usual, I find myself wondering if we should not have postponed it a few weeks . . . . at least in this area.

The above statement comes as a surprise even to me since I thoroughly enjoy a good dove shoot. However, this season, in addition to the usual number of sparrow-sized doves that are taken, I have noticed that there has been a number of adult birds that have very thick crops.

Mosquitoes were so bad during the September segment of the dove season in Pamlico County that Sfc. David M. Bell, Fort Bragg, built a smudge fire to remedy the problem.

This condition is very evident when dressing these birds. The crop is normally a rather thin membrane but on these birds it is very thick. I am wondering if this is a condition brought about by the requirements of manufacturing 'pigeon milk' for the young birds.

If this is the case, apparently this would indicate that some of these birds are still nesting. If this is the case we are obviously shooting too early in this section and are consequently killing many more birds than we realize.

I have not been able to locate anyone that knows anything about this thick crop condition on adult doves and I was anxious to hear anything that you might have to offer on this subject.

Yours very truly,
Johnson Harriss
Wilmington, N. C.

The situation is not as serious as it would appear on the surface. First, doves nest throughout the entire year, and hence it would be impossible to select a season dur-

ing which birds with pigeon milk would not be killed.

Further, despite excellent hunting success, only a tiny fraction of the harvestable supply of doves is taken. Since relatively few undersize or pigeon milk birds show up in the kill, the number of immature or nesting birds is insignificant.

We highly recommend a free booklet entitled "Mourning Dove Populations in North Carolina" for further enlightenment on the subject.

Dick Jarrett, Craven County Wildlife Protector, doesn't claim to be a poet, but he has come up with a series of couplets that we think you might enjoy:

THE POACHER

Oh say can I see, by the dawn's early light,
a fluttering squirrel tail before my front sight.

The thoughts of a squirrel stew runs thru my head,
I think maybe the warden is still in his bed.

In the still of the morning the shot loud and clear,
my heart beating loud is all I can hear.

When the shot echo has long faded away,
the bushy-tails again begin to play.

With two in my bag I'll be on my way,
For I have outfoxed the warden again today.

As I pick up my kill and start for home,
I get a strange feeling I'm not all alone.

Footsteps I hear, sherwood green I see,
its the warden I know; but he will never get me.

Thru thickets of briars, I go without fear,
but the pursuing footsteps keep growing near,

Down thru the hollows and up the hills,
but the footsteps follow closer still.

To violate the game laws I'll not again do,
Oh warden, in green if to just lose you.

I'm breathing hard, I have skinned my knees,
I have stumbled and fallen and run into trees.

I feel a hand grasp me, my heart beating fast,
the fear is now in me, I'm caught at last.

Down the hand holds me, I struggle in fear,
then a voice tells me, you are just dreaming dear.

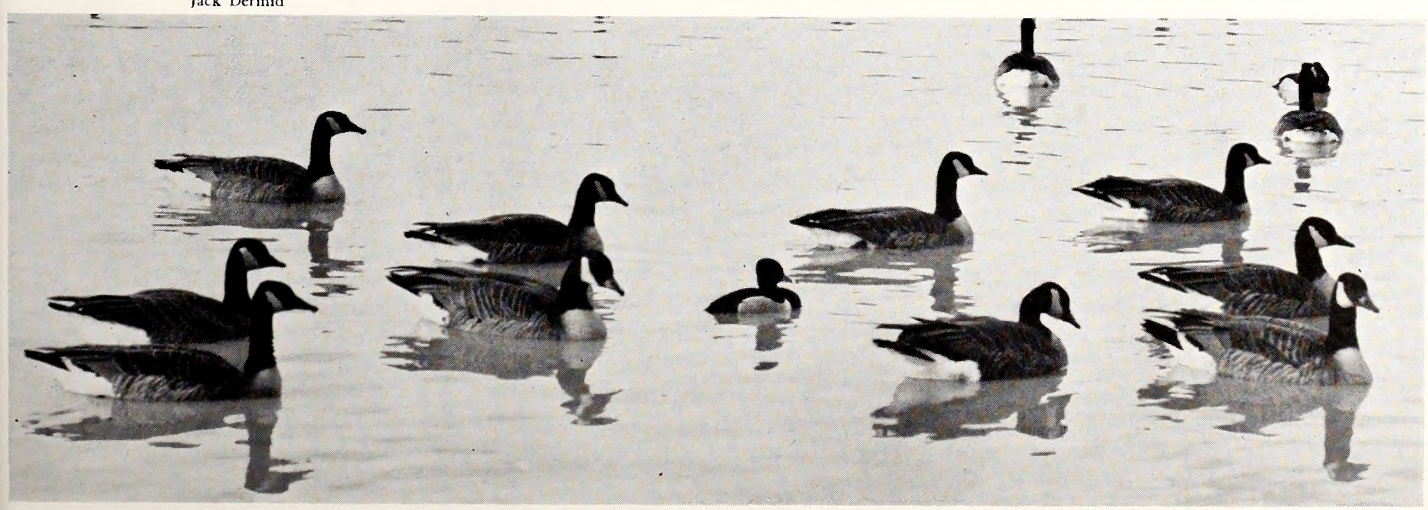
Again this year, the Wildlife Commission maintained an exhibit at the North Carolina State Fair. The display of words and pictures explained the varied functions and accomplishments of the Commission's six divisions—the story of wildlife management in North Carolina. Wildlife protectors were on duty to answer questions and sell subscriptions to WILDLIFE. Shown are Protectors James H. Goodwin, Sampson County, and Robert E. Milstead, Jr., Rowan County.

WILD GEESE AT GADDY'S POND

Jack Dermid

An armada of Canada geese escort a lone ring-necked duck at Lockhart Gaddy's Wild Goose Refuge near Ansonville. This unique sanctuary is one of few places where man can walk among wild geese and get to know them at close range.

Outside the refuge, the same geese are totally wild. A visit to see the thousands of geese is an interesting and worthwhile experience for young and old alike. A small admission charge is made to help defray the cost of feeding the birds.



Rod Amundson

"Dear Sir:

"As usual I have perused the latest issue of WILDLIFE. In fact many times I use squibs and bits on the air. Have been on this station for 19 years and have a four hour morning program (?). All of which means not much I suppose.

"But . . . . please . . . . I ask or suggest something. Regarding the white fawn . . . . couldn't she be sent to one of the finer zoos instead of being put out as gun fodder? I'm sure maybe millions of people would 'get their enjoys' from such a lovely creature.

"Please give this serious consideration. My two Bugs, three Chihuahuas, one Afghan Hound, three canaries, one parakeet, one parrot, and a blue point Siamese cat and five kittens will thank you kindly!

Yours sincerely,
Read Wilson, Chief Announcer
Station WWNC —
Asheville, N. C."

Since the picture appeared, the fawn has become partially blind. For that reason it will never be turned loose in the woods. We have contacted the National Zoological Gardens in Washington, D. C., to see if they want to display the albino.

ALABAMANS ASK FIRE ANT CONTROL PROGRAM HALT

A call for the halting of the controversial fire ant control program in Alabama has been issued by U. S. Senator John J. Sparkman and Congressman Frank W. Boykin, both of Alabama, according to the Wildlife Management Institute. The prominent Alabamans asked for "cessation of the program until a full evaluation of the good or bad effects of the present method of fire ant control can be made."

A joint statement was issued following a recent meeting in Mobile with leaders of the Alabama Wildlife Federation. Initiated last year in an effort to eradicate the imported fire ant in southeastern States, the program has been under constant criticism. Conservationists point to the alarming decimation of bird and animal life in some treated areas to show how little actually is known about the impact of large-scale economic poisoning programs. Similar losses of fish and game have followed spraying activities to control injurious forest and agriculture insects in other parts of the nation. But more than any other, the fire ant program has focused public attention on the acute need for basic information on the times, methods, and dosages of poisons that can effectively control undesirable insect pests without harmful side effects on wildlife.

The controversy surrounding the fire ant program gave impetus to the passage by Congress earlier this year of a law directing the Secretary of the Interior to undertake studies of the effects of insecticides, herbicides, and other economic poisons on fish and animal life. Congressman Boykin chaired the congressional subcommittee that moved the legislation for consideration by the House. Congress subsequently appropriated $125,000 so that the studies could get underway in the current fiscal year.

It will be some time, however, before the results of various research studies can be evaluated. Much is known about DDT, the first chlorinated hydrocarbon to be used widely, but the prevalent use of much more powerful poisons poses many new questions that must be answered. The public is aware that large scale insecticidal campaigns can destroy animal life and there is an understandable reluctance to have the programs continue in the absence of acceptable assurances.

YOUTH IN CONSERVATION

Joel Honeycutt of Locust, Stanly County, was declared state winner of the 1958 4-H Wildlife Demonstration competition held at State College during 4-H Club Week. Using a sand-table model of his farm, Joel showed how small game habitat restoration practices could be correlated with normal farming activities. Joel's prize was a $50 savings bond.

Other district winners in the state finals and the titles of their demonstrations were: Marcelle and Rosalie Vogel of Craven County, "Effects of Stray Dogs and Cats on Wildlife"; Phil Shaw of Johnston County, "Housing for Wood Ducks"; Jimmy Cherry of New Hanover County, "Construction of Wood Duck Boxes"; Donald Burgess of Randolph County, "Wildlife as a Crop"; and Patricia Blalock of Henderson County, "Wildlife Ideas." As district winners, all youngsters had their expenses paid during 4-H Club Week.

Shown above is the new shoulder patch adopted by the North Carolina Wildlife Federation. The gold quail was designed by artist Bob Hines, Fish and Wildlife Service. Green letters overlay a white outline of North Carolina.

Conservation Reserve Benefits Wildlife

A record high Conservation Reserve "sign-up" of about 12,500,000 acres for the 1959 crop year now appears almost certain, according to information obtained by the National Wildlife Federation from the U. S. Department of Agriculture. This was the preliminary picture as the last sign-up ended throughout the country on Oct. 24, 1958.

"Conservation agencies and organizations now have an unparalleled opportunity of inducing farmers to install Soil Bank practices of direct benefit to wildlife," declared Executive Director Ernest F. Swift, of the National Wildlife Federation. "Installation of more suitable habitat should result in larger populations of wildlife."

Early indications show that many farmers have signed up for the "G," or wildlife, practices in 1959. Even those farmers who have signed up in the 1959 Conservation Reserve for other practices can change to the "G" practices at any time prior to their establishment. Many conservation agencies and organizations are planning to offer inducements, financial or otherwise, to farmers who install wildlife practices for five or ten year periods. Federal cost-sharing participation for wildlife practice establishment remains at 80 per cent in most states.

Although final data on the 1959 sign-up will not be available until mid-November, U.S.D.A. officials believe the goal of 12,500,000 acres may be reached. If expectations are borne out, these acres will be added to the 10,000,000 signed up for the Conservation Reserve in 1956, 1957 and 1958.

Terming the 1959 sign-up "terrific," the Department of Agriculture already has information on two states which completed activities early. Farmers in Wisconsin signed up for 580,480 acres, or 132 per cent of the goal, and almost all available funds are subscribed. Utah farmers signed up 149,375 acres to more than double the goal of 55,000 acres and a priority system may be necessary to stay within budgetary limitations. Heavy sign-ups were indicated in most sections of the country.

Increased interest in the Conservation Reserve is believed due to several factors: discontinuance of the Acreage Reserve after 1958; increased rental payments; and special incentives offered to place entire units in the program.

Congress granted an advance authorization of $375,000,000 for the 1959 Conservation Reserve program. Of this total, some $280;000,000 will be available for the increased "new business."

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A SERIES OF FIELD TESTS TO DETERMIINE WHICH COLOR IS SAFEST FOR THE HUNTER HAS RECENTLY BEEN COMPLETED. THE TESTS WERE MADE IN VARIOUS TYPES OF TERRAIN AND LIGHT AND WEATHER CONDITIONS. COOPERATING IN THE TESTS WERE THE NATIONAL RIFLE ASSN., THE GAME DEPARTMENTS OF THREE STATES, THE CALIFORNIA OPTOMETRIC ASSN., AND THE U.S. ARMY. FINAL EVALUATED RESULTS OF ALL TESTS SHOWED YELLOW THE MOST VISIBLE AND THEREFORE THE SAFEST COLOR FOR THE HUNTER. AGAINST A POSSIBLE SCORE OF 75 THE COLORS RANKED AS FOLLOWS: YELLOW 72, ORANGE 46, PLAID 34, GREEN 27, RED 25 AND BLUE 19.

Al Barrett

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Wildlife

JANUARY-1959

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in north carolina

Photo by Jack Dermid

Secrets of a Fish Scale

As a fish graws, its scales increase in size proportianately by the additian af cancentric rings of tissue. To the trained fisheries bialogist, these grawth rings recard a biagraphy of the fish. Its age can be determined by caunting the annuli or year-marks, characteristic, incamplete grawth rings produced during winter months. Age alane is nat important, but when age is compared with size many facts are revealed abaut the fish and abaut population density and faod canditians af the water fram which it was taken. Periads af excellent grawth, starvatian, disease, and, in some species, spawning are all recorded by the scale. The reading of fish scales and their interpretatian pravide infarmatian useful in gaad fish management. Shown above is a scale reading machine, which projects a greatly enlarged image af a scale an a screen, in use in the Fish Divisian's labaratory.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

This month's cover is a scene dear to the heart of any quail hunter. The artist is Al Barrett, Raleigh, who works in the advertising division of the Carolina Power and Light Company. Although most of Barrett's art work is in the commercial field, he does wildlife pictures in water color and oils for relaxation as well as for profit. He has had occasional commissions from sportsmen to do original wildlife, hunting and fishing scenes. The quail season extends through February 14, but at press time there was some indication that the season may be closed early because of heavy winter mortality.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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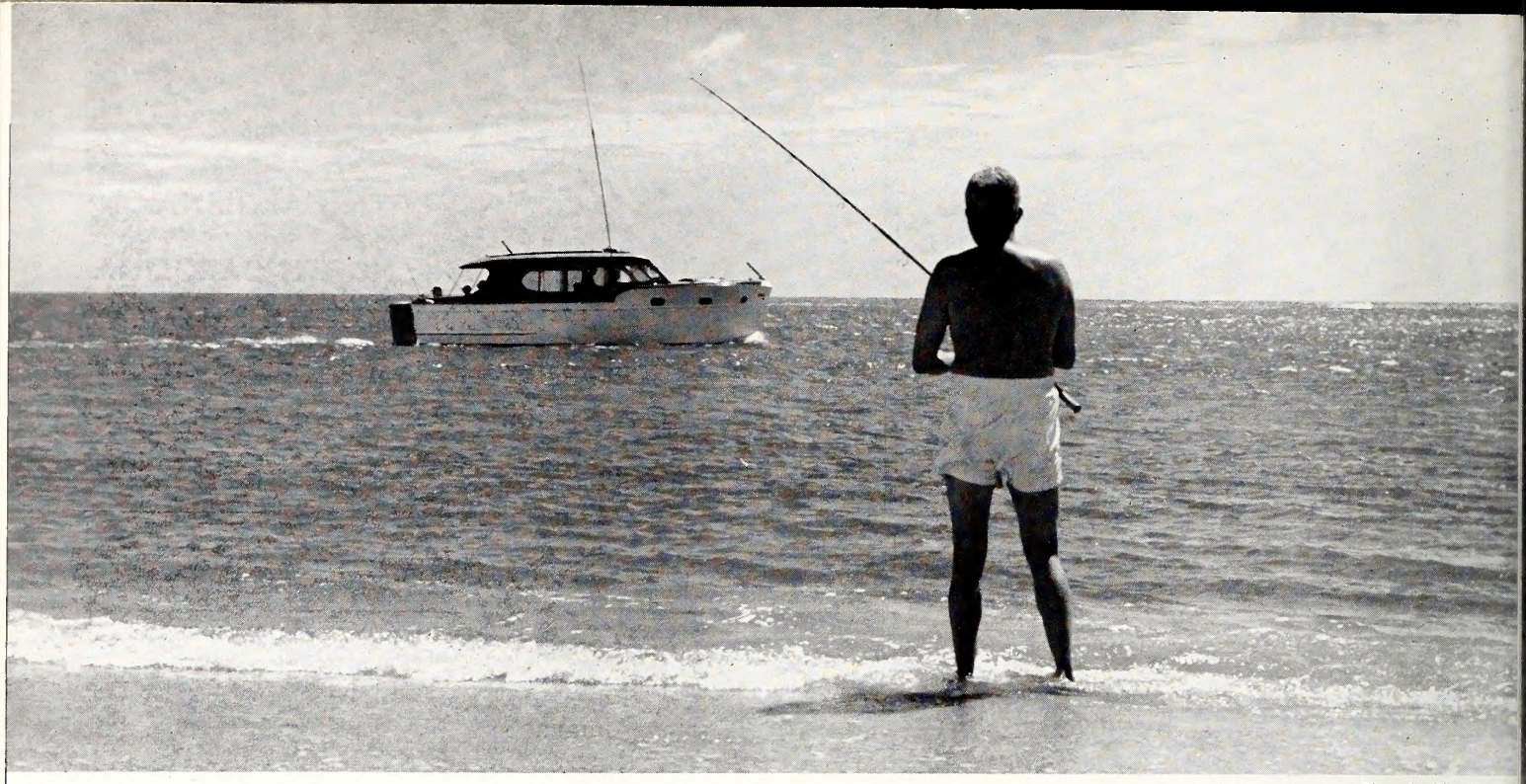


Photo by Jim Lee

Coastal Fishing Almanac

By Duane Raver

Fish of many varieties are waiting to be caught every month along the eastern edge of Tarheelia.

THERE'S no telling how many anglers, after paying their annual one or two day visits to coastal North Carolina, stormed back home and began cussing the fishing they found. You've no doubt heard the sizzling words heaped upon the collective heads of the uncooperative fish, so nothing gained in repeating them here. Rarely is the cause of such lousy fishing laid at the feet of the fisherman—where more than often it rightly belongs. It may stem directly from a lack of simple basic knowledge of the coastal areas, the fish, and when they're caught. The "how" in this case is not quite as important, although this can make or break a trip, too. The fact is that during almost any month of the year, fish of many varieties are waiting to be caught all along the eastern edge of Tarheelia. This is why the counterparts of the first group of disgruntled fishers sail back up-state with glowing tales of fishing success and full ice chests to back up their claims.

Why this wonderful variety of both coldwater ocean fish and some from tropic seas? It stems primarily from the fortunate fact that about mid-way of the North Carolina coast, Cape Hatteras juts out to almost intercept the Gulf Stream (or the Florida Current as it is sometime referred to south of Hatteras). The inshore edge of this Current is just 10 nautical miles off this Cape and the axis or center of the Stream is only 35 nautical miles away. A counter clockwise eddy or current is said to be set up at all three capes—Hatteras, Lookout, and Fear, mixing some of the warmer Stream waters with the cooler shore waters. Although this is theory, it is fairly widely accepted. The precise effect of the Gulf Stream on coastal North Carolina is not known and would be very difficult to determine or measure. It does, however, slant off seaward after leaving Cape Hatteras and soon leaves the Continental Shelf which is marked by the 100 fathom curve. So in this complex interaction of currents, eddies, deep water and shallow come fishes escaping cold waters, ones seeking the cool inshore waters and species content with temperate seas. Southern species winter here, northern species spend the entire year and

even tropic fish pay a summer visit. The fish are here, then, at prescribed times and places, and the rest is up to you.

Perhaps the answer to better fishing here is a "fishing calendar" of what fish are where, when. Let's see.

January, February, March

January is rough on fishermen, whether inland or coastal. But both can catch fish if their constitutions are strong enough and their underwear long enough. Let's stick to the salt or brackish water though. Roughly from Manteo to Edenton and from Sandy Point to Shiloh is a vast expanse of water labeled Albemarle Sound. During the winter, restless schools of striped bass or rockfish cruise its depths. Big ones—8 to 20 pounds heading for Plymouth and up the Roanoke to keep an April or May

State News Bureau Photos by Bill Gulley

Many surf fishermen use beach buggies to carry their gear along the hard-packed sand to their favorite fishing spots.

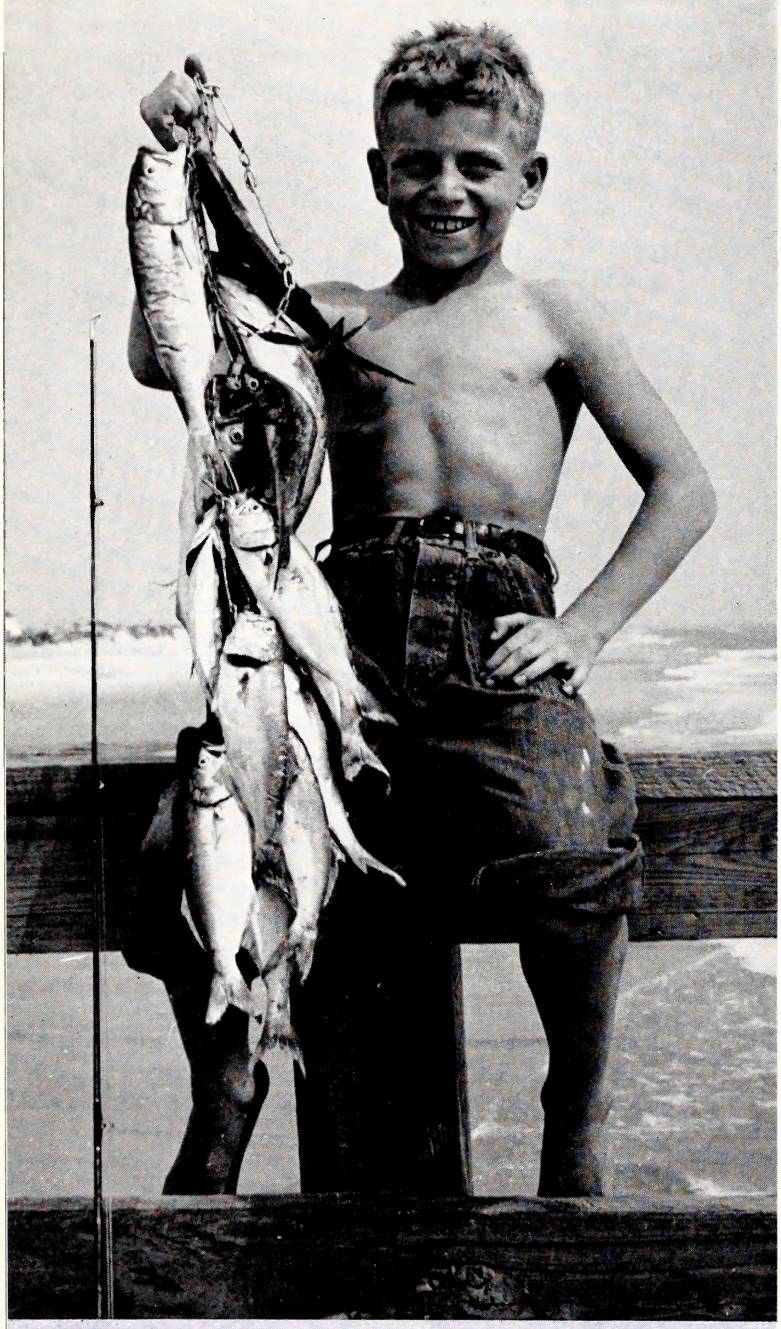
appointment with Nature; middle sized ones—2 to 5 pounds, getting an extra few layers of fat before deciding which way to head; little ones around a pound, just cruising all ready to sock a trolled jig or flashing spoon. Can you take it? The Sound is rough and tough and no place for a small boat. Bring a broad-beamed 16 footer with plenty of power to get you out of trouble. Try around the Highway 32 bridge or near the mouth of the north bank rivers. Look for bars, oyster beds or other cover. Find a deep hole and you're in business.

Trout, speckled sea trout or weakfish, that is, are on the January menu from the Bay River to New Topsoil Beach—in the rivers, in the sounds, and maybe in the surf. Remember this is a rough month so don't expect much; one good day out of ten, if you're lucky. Again pick the deep holes; check with the local fishermen; sometimes they'll divulge their favorite trout hole. Jigs or other heavy lures, shrimp or cut bait take trout when you locate the fish. Troll to find them, cast to catch them. In the surf, cut bait or the heavy "clothespin" type plugs pick up weakfish. Most anglers, even in winter, like dawn and dusk salt water fishing. In surf fishing for trout (and most other species for that matter) a "slack tide" either high or low seems better than a rising or a falling one.

February is pretty much a repeat of January except that surf fishing may be pretty much a waste of time and it's almost essential that you find the deepest holes in the rivers and bays and fish slowly.

A glimmer of hope dawns faintly in March but it's definitely there. If you can afford it, hit the Gulf Stream for the deep, fast-swimming tuna. A relatively young sport off North Carolina, nevertheless one that pays off. The streaking tuna are the advanced guard of a host of migrants that will soon be feeding in North Carolina waters on their way north. Gray trout are still around the oyster beds in the sounds, but catches may be spotty. Early arrivals of the channel bass clan may show up and some good "puppy drum" catches may be made the latter part of March. The surf may also yield Virginia mullet, depending on the weather; a mild Spring means better early fishing than a cold one. Shrimp or small pieces of cut mullet are best in the surf.

Offshore fishing can produce record results, as these blue marlin caught from charter boats fishing out from Hatteras.



State News Bureau Photo

Pier fishing is almost a year-round sport and is available to everyone for a small fee. Occasional line-breakers add excitement to the more common catches of pan-sized fish.

April, May, June

The big spring run of channel bass usually gets into high gear during April with Oregon Inlet one of the first stops. The inlets from Cape Hatteras to Topsail Beach soon record catches. The fish may hit 50 or 60 pounds and obviously good, substantial tackle is essential. Cut mullet or whole crabs seem best. Still not much activity 'way off shore with the bluewater species during April, but bluefish, spot, mullet and a few others hit the Frying Pan Shoals area during the month. Now all this cataloged information is practically pointless unless you fish where the fish are (or are supposed to be). So back to the boys who make their living fishing. Not all will be bubbling over with helpful hints, but most will point out several areas where fish congregate. It's pretty difficult to tell what's under a piece of water by scanning the surface and it's what's down below that counts in this case. Any sort of cover is always good: rocks, an old wreck, piling—anything to give the fish a place to feed.

The warmth of May lures other species north and pier fishing comes into its own. Weather is still a key factor but blues, trout, a few more spot, flounders, and Virginia mullet sweep up the coast ready for lunch to be served. Often depth plays an important part in pier fishing and it's best to try from the bottom to the surface before giving up. Usually the deeper the better, but a little experimenting may pay off. If the big one's aren't hitting, switch to a smaller hook and a tiny piece of shrimp; something's bound to latch on. Local conditions and favorite baits and methods should be observed at all times: "when in Rome," you know. Of course you have to select the type of fishing you want to pursue—pier, surf, sound, offshore, etc. and rig up accordingly. But take the advice of the natives; they usually know.

June is still better. The charter boats swing into full-scale action, chasing dolphin, amberjack, Spanish mackerel, king mackerel, big blues and even a few marlin. Here, all you have to do is pay the man and he will put you in them. The questions of where, what, and how are answered by the boys whose living depends on your success. The key to this success is very often the weather—something you simply can't predict (although some attempt it). You can bet the fish are there; whether they'll be feeding when you arrive is something else. And even if they are, you may not be able to get to them. Don't blame the Captain for a bad day weatherwise; he doesn't like your disappointment anymore than you do. If your tastes (or funds) indicate inshore or sound fishing, the channel bass still roam the inlets from Nags Head to Topsail; flounders are on the feed all along the coast, and good sized bluefish may move into shallow water to skip minnows at your feet. Each type of saltwater angling requires its own tackle for best results. However, for all but channel bass of picture-taking size and the Gulf Stream heavy-weights, a medium weight surf-spinning rod from 7½ to 9 feet that will handle up to 3 ounces will be adequate inshore or in the surf, when teamed with an open faced medium surf-spinning reel that will handle at least 200 yards of 10 pound test monofilament. The Langley 860 is a good example. Some like 12 or even 15 pound test, and there may be times when 20 will be too light to stop the unexpected prowler. A handful of 1, 2 and 3 ounce sinkers (pyramidal and round) a few coils of 20 and 30 pound test leader material, a variety of saltwater hooks #1 to 5/0 (if you're after spot, have some size 6 hooks ready), a half-dozen reliable salt water plugs, and you're ready for most anything. The standard freshwater casting outfit with 15

pound test line accounts for many a fish, both from the piers and surf, and many surfers like a conventional reel rather than a spinning reel.

July, August, September

A reasonably calm July day with blue sky and just enough cloud cover to keep the temperature below 90° would be my pick of time for coastal success. Since you can conveniently be only one place at a time, you must select your spot, whether it be 100 miles out cruising through acres of dolphin or hip deep in the foam of some outerbank beach. The strike of a bluewater fish at your trolled spoon may be so fast that your eyes won't record it; but the jolt will certainly be recorded! Sound good? You may just as well get skunked on any given July day, too. Beware the man who tells you that on a week from Wednesday (or even tomorrow) you will catch fish. He, sir, is either a fool or magician and there aren't many of the latter left these days. The point is, prediction is always based on *if*, and that's the way it always will be. Surf or sound, this holds true also. Vary your methods from hour to hour, look for odd current formations in the surf (sloughs or holes may lie underneath) and keep fishing. Flounders often are at their peak in July; trout and blues still offer the weekend angler the hope of success. Mind you now, they simply aren't "everywhere." You may fish within a few feet (vertically or horizontally) of vast schools and never see a scale. Runs of big king mackerel pile in off Morehead City, Topsail, and Wrightsville during July. Reservations for weekend charter boat fishing from now to December must be made 6 or 8 months in advance. Weekdays are better. Did you pick a rough day? Remember that group of hopeless souls in the first paragraph of this epic?

Fishing in inland waters during August isn't always the best (understatement for the week). But coastal angling? Going full steam ahead. Bluewater fishing is enlivened by the appearance of sailfish and marlin on the scene. Most of the rest of the

State News Bureau Photo by Gus Martin

The abundance of salt water fish is illustrated above by the photograph of part of one catch of amberjack taken off the coast near Shallotte Point. At right, students at the State College Sport Fishing Institute bring in a glittering amberjack from the blue waters of the Gulf Stream. During the peak months for offshore fishing, anglers bring home catches including dolphin, amberjack, Spanish and king mackerel, bluefish, and marlin. Sailfish are being added to the display racks at the boat docks, indicating that either Tarheel fishermen are learning how to fish for sail or that the finny fighters are moving up the coast in increasing numbers.

spectacular gamefish gang stay around to provide plenty of action: barracuda, mackerel, dolphin, amberjack; you name it, August has it. In the surf the slinger of a flashing plug may encounter blues, trout, flounder, pompano, and who knows what? The trick, of course, is to pick the right day. Fortunately, they outnumber the "wrong" ones, but it still can be discouraging. Channel bass drop off some to come storming back in October.

The only addition September can make to the scene is a scattering of cooler days and (we hope not) a hurricane, maybe. Flounders and Spanish mackerel may not be as plentiful, but spot swarm in to fill the waiting lard stands from Atlantic Beach to Shallotte. Rockfish may start toward the sounds, and the bridges should be watched for concentrations of anglers swinging in the gleaming stripers. Record marlin may strain the stoutest of tackle and the spectacular wahoo may slam into a trolled spoon. September can be a month of surprises.

October, November, December

October sees the restless barracuda, amberjack, and dolphin seek warmer water but the king mackerel may move closer and closer in until he's practically on the very beach. The surf fisherman comes back into his own with plenty of channel bass once again, trout cracking artificials, bluefish still hungry and spot in great schools. Striped bass are moving up Croatan Sound in large numbers by October and several locations in Albemarle Sound may yield good catches. Spoons and bucktails work best on the stripers.

Weather becomes an even more important factor now and limits the offshore boats in their pursuit of king mackerel. It may present trouble for the channel bass angler at Cape Hatteras, and drive in all but the hardiest fishermen. But to those who pick the nice days, these and other fish such as the trout, a few late bluefish and flounder hang around ready for a fight. Pick the right locations and the times and coastal fishing continues bright.

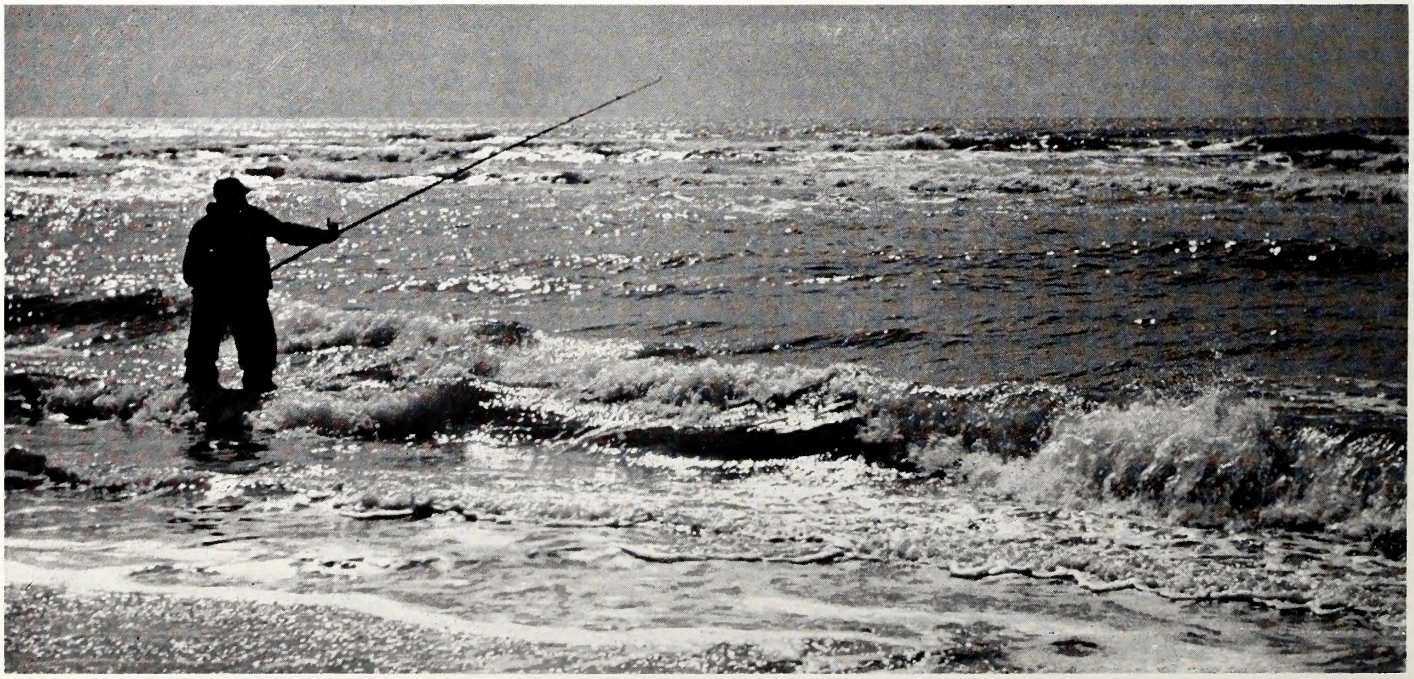
December closes the hatches on the charter boat season and may discourage most of the surf casters. Flounders persist, trout may be holed up in great numbers and puppy drum are caught far up some coastal rivers. The striper furnishes a lot of sport in December and many rivers have concentrations of the silver giants. It takes different techniques now to put fish in the larder and certainly the summer locations are useless.

What about all the delightful bottom fish, the black seabass, grunts, triggerfish, snappers, and on and on? Summer months in general are best, strong tackle the rule and the institution they call the "head boat." These big offshore cruisers handle around 60 people and make fabulous catches at times. The seas can be rough under these boats, but fish are almost assured.

All of this points up one inescapable fact: even with the tremendous variety of fishing available, the almost endless kinds of fish present, and the miles upon miles of coastline, there will be good days and bad. Insurance against some of the bad days consists of a more thorough knowledge of the water you're fishing, a better understanding of the movement of fish from season to season and experience in picking your spots.

The Cape Hatteras National Seashore in Dare County, one of the finest surf fishing spots in the nation, offers the angler many miles of uncrowded beaches.

Photo by Jack Dermid



At Lake Mattamuskeet

MARSH MANAGEMENT PAYS DIVIDENDS

Photo Short by Jack Dermid

"Grab a camera. I've something mighty interesting to show you," said Willie G. Cahoon, Refuge Manager at Lake Mattamuskeet.

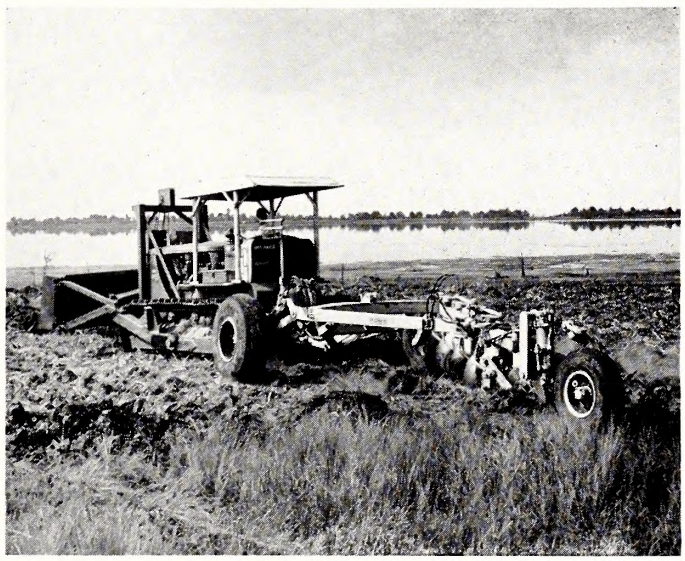
When we climbed out of the car at the end of a canal-bank road, the whole marsh seemed to rise up in front of us as 5,000 pintail, black duck, mallard, green-winged teal, and baldpate took wing.

"Over 20,000 ducks were using this area of the refuge a few days ago," Cahoon remarked proudly.

He had ample reason to boast, for only 18 months ago, this productive 225-acre marsh contained a solid growth of cattails and was practically useless for waterfowl. Modern marsh management techniques were put into operation in the summer of 1957. Through the manipulation of water-control gates, the level of Lake Mattamuskeet was lowered to six inches below sea level. When the marsh had dried sufficiently, it was cut up with a heavy offset disk. The 38-inch blades of the disk cut deep into the mud and kicked the cattail roots to the surface where they dried out and died.

Planting of the marsh was unnecessary, for with the aggressive cattails gone, desirable waterfowl food plants invaded the area — dwarf spike rush, three square, wild millet, and others — and the ducks and geese returned to feed.

A record number of ducks and geese returned to the Lake Mattamuskeet National Wildlife Refuge this winter. When the waterfowl population was at its peak, it was estimated to contain about 125,000 Canada geese and 200,000 ducks and coots.



Every summer the lake is lowered, and a familiar sight is the busy D-7 tractor and disk tiller making acres of marshland more productive for waterfowl. BELOW: Roger Swindell, operator, is dwarfed by the huge tiller with 38-inch blades.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Wildlife Plantings Pay Off During Heavy Snow

North Carolina's thousands of miles of shrub lespedeza plantings may have saved the day for bobwhite quail during the December heavy snows. Shrub lespedeza grows high enough to allow birds to feed in the branches or pick up seeds fallen in the snow. There were numerous reports of quail and doves starving in areas where lespedeza and annual food patches had not been planted. Free lespedeza and multiflora seedlings plus annual seed mixtures are now available from the Wildlife Commission.

Provisions Made for Wildlife and Fish at Cowan's Ford Reservoir

Contrary to popular belief the Wildlife Resources Commission and the U. S. Fish and Wildlife Service were on hand to look after fish and wildlife interests at the Cowan's Ford Reservoir to be built on the Catawba River. Wildlife officials were called in when Duke Power Company applied to the FPC for a license. The wildlife resources of the area were studied in the summer of 1957. As a result of the study and recommendations minimum water flows are guaranteed to protect fishing interests, and a total of ten fishing access areas with 100 acres of parking space have been provided for in the Federal Power Commission license issued recently.

As a power reservoir Cowan's Ford will have a vertical water fluctuation of 25 feet. This factor will make impossible the production of vegetation to attract waterfowl. High water levels will occur in the summer when aquatics and grains should be planted, and low levels will occur in December. The reservoir covering about 33,000 acres with about 400 miles of shoreline, can serve as a waterfowl sanctuary and resting area. The U. S. Fish and Wildlife Service, however, does not consider the area suitable for becoming a federal waterfowl refuge. The Catawba Valley is generally steep, and tributarial areas are not suited to making shallow sub-impoundments.

With plenty of access areas the reservoir should provide an abundance of recreation from fishing and boating.

Managed Hunts

The Game Division is now in the process of compiling hunt statistics on the recently completed management area big game hunts. See February WILDLIFE for an informative article.

During the hunting season, the cottontail provides exciting outdoor sport for millions of Americans. Through the years, rabbits have become adapted to play the role of the hunted.

The Cottontail's Year

Illustrations by Wallace Hughes **Text by Jack Dermid**

JANUARY finds the cottontail rabbit fleeing before a pack of bright-eyed beagles, and rightly so, for the rabbit's place in nature is to be hunted. He is a prey species and his role is to provide food for the flesheaters. From birth until he makes a fatal mistake and is caught, the rabbit's life is a succession of chases and narrow escapes. And only man observes a closed season.

Continuous bouts with predators have made the rabbit fast and wary and a desirable game species for the hunter. In fact, the cottontail is the most popular game species in the United States. In North Carolina, he ranked a close second to the gray squirrel during a five-year Commission study, 1951-52 through 1955-56. The race in popularity was so close that in some years the rabbit outranked the squirrel. The peak season for the rabbit was 1952-53 when 1,619,782 hunter-trips yielded 2,624,118 kills. The low season was 1954-55 when 1,143,158 hunter-trips yielded 1,666,766 kills. Over 11,000,000 rabbits were harvested during the five seasons — over 7,000 tons of meat for the table and countless hours of top recreation.

The take by hunters is only a small part of rabbit mortality. Every flesheater that can catch and kill him considers the rabbit fair prey. Every day he faces a gantlet of predators that include minks, bobcats, foxes, hawks, owls, free-hunting dogs, stray cats, and even rattlesnakes. Nests are raided by even smaller foes. Besides predation, the rabbit is killed by tularemia and other diseases, run down by automobiles, poisoned by in-

Even in winter in North Carolina, finding food is usually not a problem for the cottontail since his diet consists of a wide variety of grasses, sedges, leaves, roots, seeds, buds, and bark. Wildlife plantings, such as this shrub lespedeza, prove helpful during periods of severe weather.

Rabbits have favorite foods such as ladino clover and soy beans, and scattered plantings near protective cover is management practice which will attract them. In Nort Carolina, the breeding season may begin as early as Feb ruary and extend into October. The gestation period is abou 30 days. Litters vary in size from 3 to 8 young, and female may produce 3 or 4 litters a season.

secticides, or destroyed by the vicissitudes of weather. The average life of the cottontail is less than a year, and rare, indeed, is the wild individual that dies of old age.

It is amazing that the rabbit has survived through the ages. But the rabbit is a successful prey species. His whole life revolves about three functions: escape, reproduction, and food.

Since the cottontail is no match for a predator in combat, he relies upon escape for survival, and his entire body has evolved to meet this challenge. He is ever alert. He sometimes escapes detection by freezing. His coat blends with the surroundings and his bulging eyes, projecting from each side of his head, permit vision in all directions. The rabbit does not have to turn his head to see an enemy approaching from behind or above. Once discovered, he is a master of fleetfootedness, capable of great bursts of speed and erratic maneuvers. But his endurance is limited, and he must soon find protective cover if his pursuer is persistent.

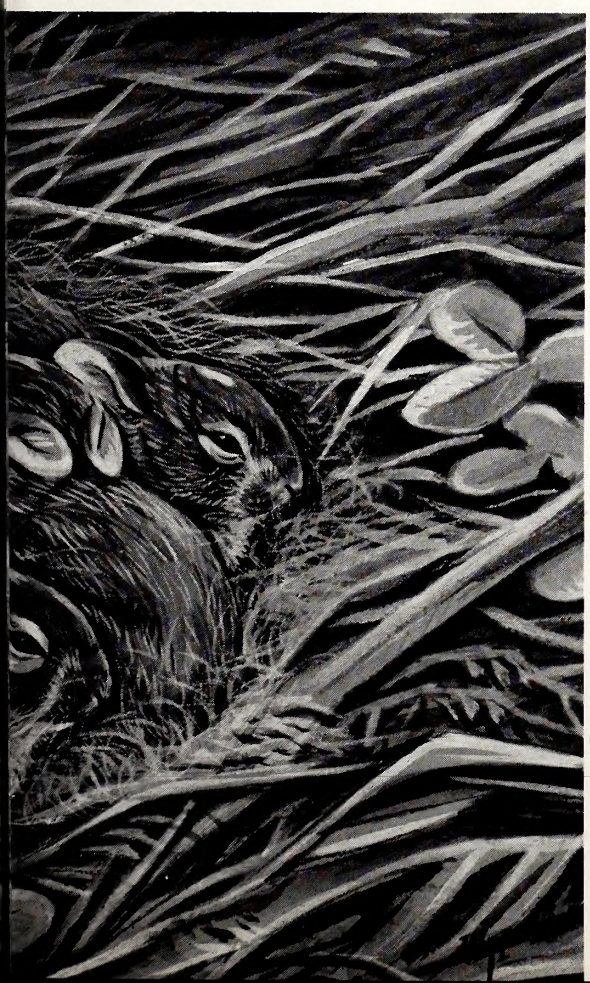
The cottontail's high reproductive rate is a factor that insures survival of the species. Rabbits that remain alive through the winter are usually capable of repopulating the range before the next frost. In fact, their reproductive potential is so great that if all rabbits born in North Carolina survived for a few years they would overrun the land. There is no need to stock rabbits to boost an existing population.

Another factor that favors the rabbit as a prey species is his varied diet of vegetable food. His menu is so variable that it would be easier to list those plants which are rejected than those eaten. Food shortages seldom face the cottontail.

In North Carolina, then, management for better hunting depends largely upon the adequate distribution of good cover

The rabbit's never-ending battle to survive begins at birth. Keen-nosed predators detect the young regardless of their concealment. Nests are destroyed by plowing or uncovered by mowing operations. Heavy rains may drown helpless young in their nests and prove disastrous if they occur during the peak nesting months. Babies perish when their mothers are killed on highways. But rabbit nests are abundant, and many are successful.

oung, blind and naked at birth, are placed in a nest ground about the size of a large grapefruit. This nest by the female and is lined with grasses and hair, she plucks from her own body. A camouflaged covering ir hides the young, keeps them warm, and protects from showers. The female returns to the nest only d her family, usually at dusk and dawn, although she remain in the vicinity ready to defend her nest the he can from an enemy.



Baby cottontails grow rapidly. Their eyes begin to open about a week after birth, and in two weeks, as miniature replicas of their parents, they leave the nest to begin feeding upon vegetation. Nursery life is largely over, although the female probably gives them a little care until they wander away. More than likely she is already making preparations for another litter. These rabbits find the variety of food and cover of a wildlife food patch much to their liking.

so that the cottontail can feed and propagate without undue exposure to predation. He needs a safe place to hide from or outwit his enemies. Since the rabbit's home range covers only a few acres, wide distribution of cover is important for high populations. Thus brushy fencerows, patches of blackberry and wild plum, and swampy thickets protected from fire and clean farming practices prove their worth.

Wildlife planting materials furnished free by the Wildlife Resources Commission provide both food and cover for rabbits as well as for other farm game. A multiflora rose fence through a pasture, for example, provides a safe travel lane to clover and grasses that would otherwise be dangerous to utilize. Brush piles, about 4 feet high and 12 feet in diameter, scattered about idle fields furnish protection. Incidental management might include the control of free-hunting dogs and cats during the nesting season, and the planting of small patches of ladino clover and winter grasses near areas of existing cover.

Given half a chance, the cottontail will thrive and provide an abundance of good hunting, for that is his way of life.

Late summer finds the cottontail population at its peak. As summer's lush vegetation thins with the passing seasons, cover becomes of prime importance in the rabbit's constant battle with predators, and a big crop of rabbits for hunters to harvest may well depend upon its availability.

What youngster does not find joy and excitment in tending box traps or thrill at the sight of a cottontail bounding away? The interest that many sportsmen have in the out-of-doors began with adventures with rabbits during their youth.

The Caswell

Wildlife Management Area

by T. Stuart Critcher

Federal Aid Coordinator

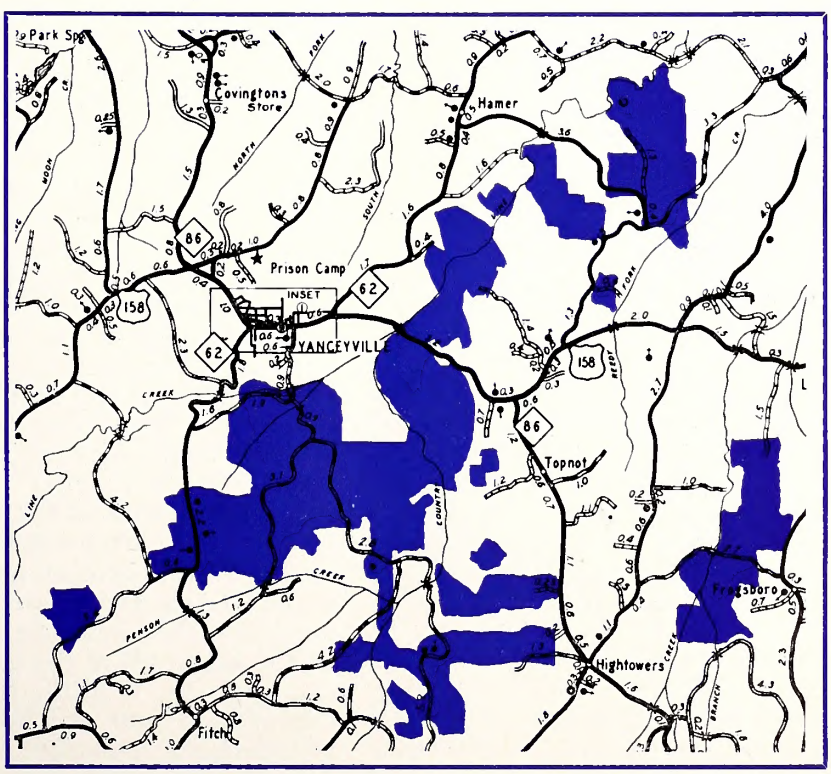
The new Caswell Wildlife Management Area adds valuable Piedmont hunting lands to the growing list of refuges.

AS of mid-November, the North Carolina Wildlife Resources Commission had completed most of the negotiations for purchasing a 14,037-acre tract of Federal land located near Yanceyville in Caswell County. Acquisition of the Caswell area will mean that thousands of North Carolina sportsmen will have another wildlife management area on which to hunt and enjoy the out-of-doors. The Caswell area will be of particular value to hunters in the industrialized Piedmont, a region where hunting opportunity is limited, and the Wildlife Commission is especially grateful for the chance to improve hunting in this area since a large proportion of the State's hunters live in the nearby cities and towns.

Most of the several tracts which comprise the area were acquired for the United States between 1938 and 1942 by the Resettlement Administration, under authority of Title III of the Bankhead-Jones Farm Tenant Act. Upon acquisition, the Caswell County Land Use Area was assigned to the United States Soil Conservation Service which, for a time, used the area as an agricultural demonstration area. In 1954, management of the area was transferred to the United States Forest Service.

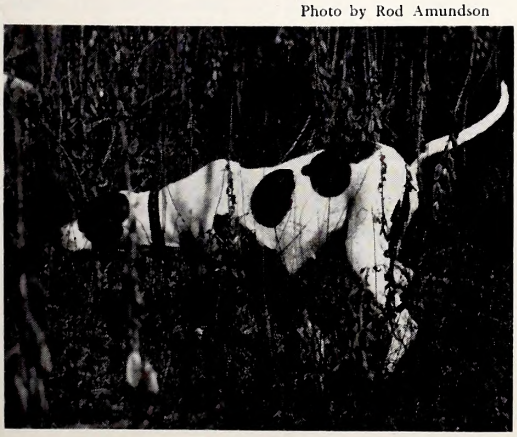
The purchase unit is composed of 11 irregular separate blocks of land as shown on the accompanying map. The topography, which is typical of the Piedmont, ranges from an undulating to a steeply rolling condition. The area is laced with numerous small streams which drain into County Line Creek and Hyco Creek. These, in turn, flow northward into the Dan River. The predominant soil types are sandy clays and clay loams, both of which

The areas shown in color on the map at right make up 14,037 acres of undulating to rolling Piedmont land, which is 92 percent wooded.



The area is being developed for small game to provide public hunting for wild turkey, quail, rabbit and squirrel in the years to come.

Photo by Rod Amundson



are highly susceptible to erosion.

The area is primarily woodland; 12,985 acres or 92 percent is in timber—pine, mixed pine-hardwoods, and hardwoods. The major species are shortleaf pine, Virginia pine, red and white oaks, hickory, yellow poplar, sweet gum, elm, maple, ash, dogwood, and other hardwoods. Seven percent, 948 acres, is in cropland, primarily sericea lespedeza, tobacco, and other row crops, and small grain. The remaining 104 acres is abandoned agricultural land.

In 1948, wildlife management rights on about 5,000 acres of the Caswell area were obtained by the Wildlife Resources Commission through a co-operative agreement with the Soil Conservation Service. This part of the area was closed to hunting and a development program was undertaken for the restoration of the wild turkey, quail, rabbits, and squirrels. There are few, if any, deer on the area. Development work included the construction of access roads and the seeding of these roads to ladino clover. Ladino and fescue were also planted on abandoned field sites. Chufa, browntop millet, German millet, and other annual food-producing species were used, as were winter greens such as wheat and rye. Perennial shrub lespedeza patches were established for quail feeding areas and sericea lespedeza was maintained for nesting and escape cover. The development program and increased protection served to increase the game supply on the management area and in 1955 it was opened to public hunting for wild turkeys and small game.

In July 1952, the original co-operative agreement was amended to include provision for the construction of two buildings. These serve as operational centers for the field trials conducted by the North Carolina Fox Hunters Association. Large numbers of foxhound enthusiasts from all parts of North Carolina as well as other states participate in this annual affair.

Upon completion of purchase negotiations for the 14,037-acre Caswell area, it is anticipated that a development program for wildlife restoration will be planned and undertaken for the entire acreage. This program will include boundary location and designation with Commission signs, road construction and maintenance, habitat improvement through the use of food and cover plantings, forest stand improvement for timber and wildlife, and increased protection from out-of-season hunting and feral dogs. In addition, an appropriate hunting system will be employed which will provide for an equitable and adequate harvest of the annual crop of wildlife species.

The federal appraised value for these lands is set at $1,273,232.25. However, the purchase agreement stipulates a 30 percent discount, which will mean an actual cost of $891,262.57 to the Wildlife Resources Commission. Three-fourths of the actual cost will be paid from funds made available to the Wildlife Resources Commission under the Pittman-Robertson Federal Aid to Wildlife Restoration Act of 1937. The remaining one-fourth will be paid from Wildlife Resources Commission funds which are derived primarily from hunting and fishing license sales. Actual payments will be made in 10 equal annual installments.

PROTECTOR OF THE MONTH

Ernest L. Mosley

The Tyrrell County Wildlife Protector, Mr. Ernest L. Mosley, was born in Falkland, North Carolina on September 25, 1908. Prior to entering wildlife service, he was with the Sheriff's Department, having been appointed to fill an unexpired term of the late J. E. Reynolds. Mr. Mosley has been in wildlife protection work since January 3, 1937, and has served three years with the U. S. Army.

Mr. Mosley is a member of the State Employees' Association, he is a Vester, and a Woodsman of the World. He is Sunday School Superintendent at Malachia's Chapel Church, and is married to the former Irene Reynolds. The Mosleys make their home in Columbia, North Carolina.

ENFORCEMENT RECORD FOR NOVEMBER

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other Law Enforcement Agencies in the enforcement activities for the month of November, 1958.

Persons checked	41,519
Total prosecutions	870
Total convictions	821
Total cases not guilty	41
Total cases nol prossed	8
Total fines collected	$7,377.30
Total costs collected	$5,616.96

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is it a violation to take a cub bear during open season?

ANSWER: Yes. It shall be unlawful to kill a cub bear. For the purpose of this regulation, a cub bear is defined as any bear weighing less than fifty pounds.

IS CONSERVATION the Right Idea?

By Bill Hamnett

Many teachers are accepting the challenge of bringing the vital concepts of conservation to the classroom.

TO continue with the ideas and suggested aids to better put across the problems and solutions of conservation activities to our school children and interested adult groups, let's first of all decide what conservation really is.

Conservation is an idea, not a subject to be taught. Teaching the idea is difficult and demands a teacher's best effort. It makes little difference that a child can identify every bird he sees in the school yard if he shoots birds around his home. Because students, as well as most adults, are not curious about conservation, the problem in teaching is to present the importance of wise use of our natural resources. The key to success in getting across the concept of conservation is to have things to do and an understanding of why they are being done, because if understood they will influence behavior.

In *Elementary-School Science, And How To Teach It,* by Glenn O. Blough and Albert J. Huggett will be found suggested "things to do" and a few of them are given here.

How important are natural resources to us in our everyday living? Students can make a list of things they do for two or three days: eat breakfast, come to school, work in the garden, buy groceries, play football, watch TV. With this list find out which came from the earth, grew in the soil, came from animals which depend on plants, and which needed water to grow. An evaluation will show these resources are slowly being depleted year by year, and this should stimulate an awareness that conservation is a serious idea.

Writing for conservation material from various agencies will serve as a training aid. Writing to you about it from the receiving end, may I say that requests are more favorably considered if one person from the class writes in behalf of the class instead of each student writing to the same agency. Let students write to different agencies and get more variety of information. Materials sought may take several weeks to arrive, and this part of student training develops the need for planning ahead.

Observations and experiments with soil and the effects of running water can provide students with some background for comprehending the seriousness of soil erosion. Land and water support life. After all, during the colonial days there were 600 acres of land per colonist; yet today, there are only 18 acres per individual. Water will dominate the conservation problems and projects in the future. Look to your school yard and nearby farmlands for inspiration.

Does your school have a school forest? In the vicinity of most schools there is some land that may be used for this purpose. This will develop from a cooperative project into a community program in a very short time. Some have found considerable teaching value in presenting the complete life of a tree and all its ramifications, from sprouting seed until it is big enough to harvest.

An interesting and informative time may be spent studying game and fish laws. Why do we have laws that specify the length of season for hunting and fishing? Why are dates and numbers of days different for some species? Why is it unlawful to kill the female of some species, but not with other species? This is one interesting way of learning how many kinds of game and fish are found in our State.

Sometime during the study of conservation it is highly desirable for pupils to take a field trip to see many of the things they have studied about in class. Not all students are interested in the same thing so have the trip diversified to reach as many interests as possible. Remember, a class discussion to summarize the findings of such trips is very important.

If conservation is an idea, it is then the right idea for all Americans to accept.

Utility Rights Of Way—
WILDLIFE LANDS OF PROMISE

by Donald Hankla
Leader, Upland Game Restoration
Photos by Jack Dermid

IF utility rights of way (natural gas, gasoline, electricity, and telephone) were planted with perennial game food and cover plants, they would help bring back the "promised land" to the upland game hunter. Quail and rabbits could thrive and multiply on these untold acres of ideal range interspersed throughout the State.

Besides benefiting game, wildlife plantings would mean lower right of way maintenance costs to utility companies, an item of importance in these days of rising prices. They would help control soil erosion and contribute toward cleaner streams. How?

Biologists know that the most productive areas for quail and rabbits consist of mixed vegetation of annual weeds, grasses, legumes, vines, and brambles. Such areas need not be large in extent but to be most effective should be scattered throughout the countryside. The hunter knows the value of edge — where two or more cover types come together — for that is where he usually finds better shooting. Rights of way bisecting all types of cover in all sections of North Carolina provide miles upon miles of edge. All they need is proper development for wildlife.

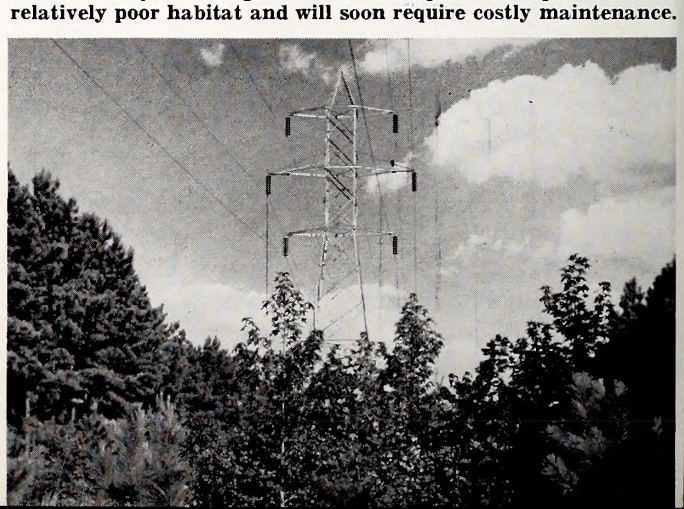
How can utility companies save money? It costs a lot of money to keep rights of way open for the use of maintenance crews and to prevent incoming trees from growing up into transmission lines. Methods now include clearing with a dozer at 10-15-year intervals or with heavy harrow at shorter intervals and spraying with herbicidal chemicals. Additional costs come when roadways have to be repaired because of erosion.

In 1951, in an effort to demonstrate management techniques compatible with utility company interests and beneficial to wildlife, the Wildlife Resources Commission established experimental plantings on a right of way in Duke Forest near Durham. Plantings consisted of shrub lespedeza borders along woodland edges and either fescue and ladino clover or sericea lespedeza beneath transmission lines. Untreated control areas were set aside for comparative purposes.

After seven years, sericea plantings were found to be better

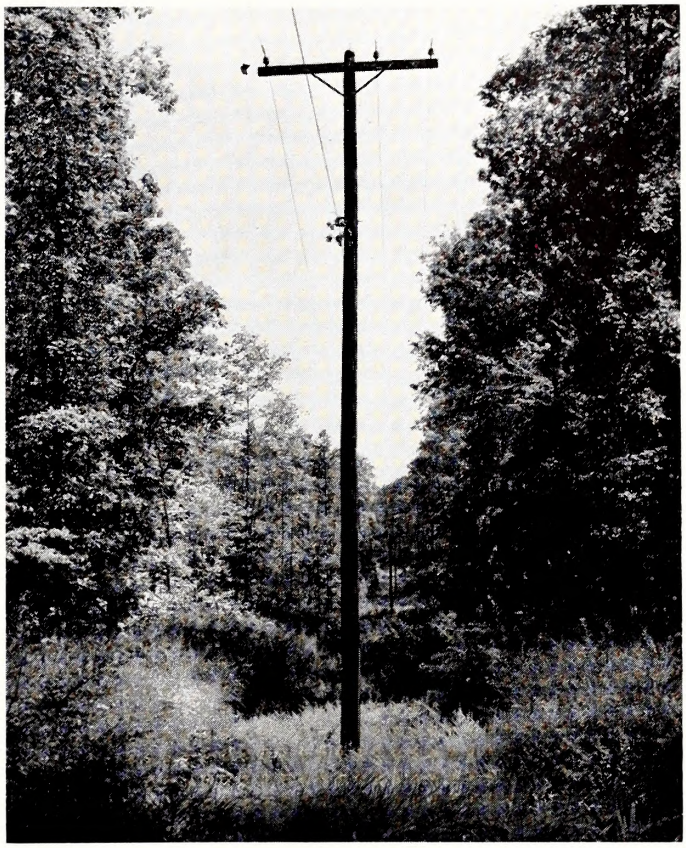
Bobwhite quail and rabbits find excellent nesting sites amid the low perennials useful for right of way development.

This seven-year-old growth of sweetgum and pine affords relatively poor habitat and will soon require costly maintenance.



Cleared rights of way when left unplanted are sources of erosion. Contrast this picture with those on left and right — good wildlife habitat.

sides checking tree invasion of the right of way, this seven-
ar-old planting of shrub lespedeza and fescue in Duke Forest
ovides superior food and cover for rabbits and quail.



Plantings of shrub lespedeza along woodland edges and sericea lespedeza beneath transmission lines produce habitat capable of sustaining high populations of small game.

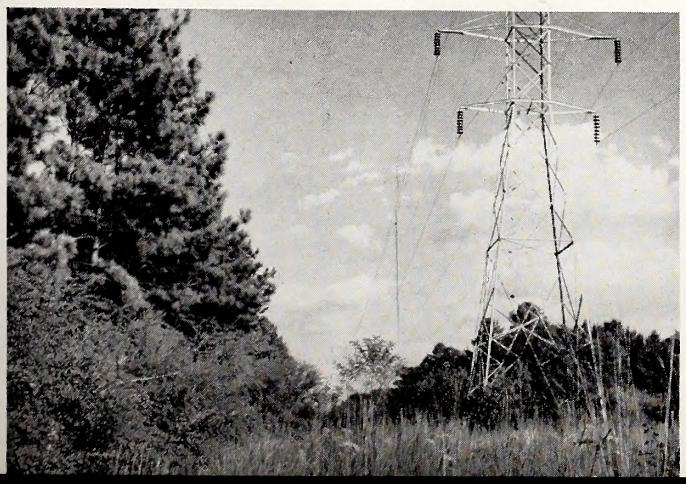
than average quail and rabbit habitat, furnishing excellent cover and some food. The sericea did an excellent job of preventing invasion by trees. Fescue and ladino clover produced superior wildlife habitat since the plots had been invaded by various legumes, weeds, and brambles. Again, invasion by trees was practically nonexistent. Borders of shrub lespedeza rated high in food production — all this with no maintenance after the initial planting!

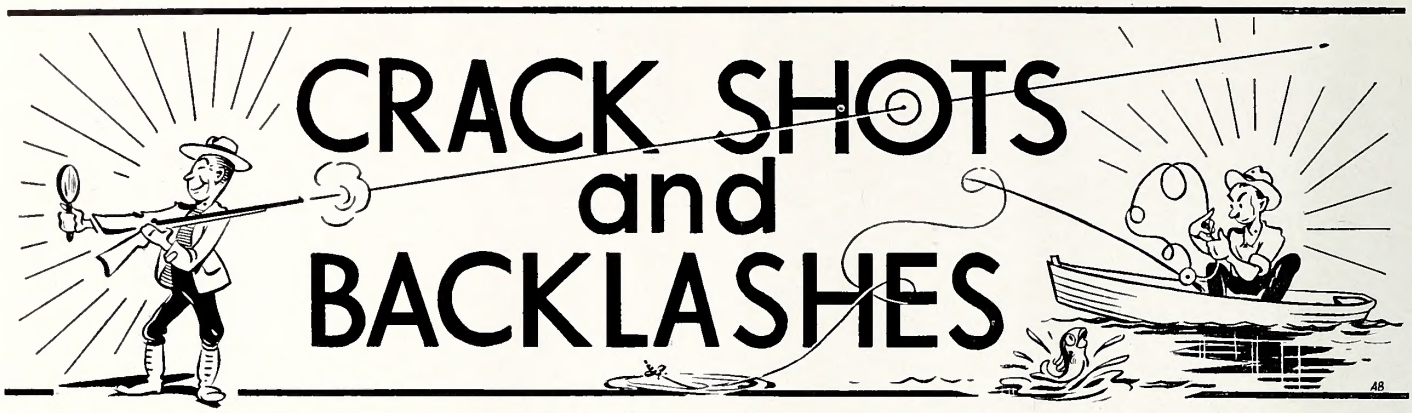
The untreated check plots were found to be relatively poor wildlife habitat. There was little herbaceous vegetation. Trees were making a wholesale invasion, and they would soon have to be destroyed to maintain the right of way. In contrast, the plots developed with wildlife plants would remain stabilized many more years. Their low vegetation would permit easy access by company vehicles, and the soil had a good protective cover.

The study indicated that if utility company rights of way were seeded to low growing perennials after they are cleared, long-term maintenance problems and costs would be considerably reduced and sportsmen would be greatly benefited by the creation of prime game-producing habitat.

The invasion of legumes, such as this partridge pea, as well as weeds and brambles further improves fescue and clover plantings for wildlife.

In contrast, this seven-year-old plot of shrub lespedeza and fescue is very useful to wildlife and tree invasion is slight.





DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

About this time of year we begin to hear questions like "why doesn't the State stock quail and release them so we will have something to shoot at?"

This always sounded like a good idea, but it never has paid off in more sport for more people or in a financial way. North Carolina has about 260,000 farms—more than any other state including Texas. Suppose a pair of quail were stocked on each farm. At two dollars per pair, that would amount to half a million dollars.

Pen reared quail just do not survive in appreciable numbers. They have been sheltered from enemies. They have had their food and water handed to them daily. They don't know how to sip a dew drop from a honeysuckle vine, and their parents didn't teach them to chase insects, eat seeds off the stock or scratch for food off the ground. If they don't die of thirst or starvation they become so weakened that predators get them.

Tennessee did this research on quail stocking, and it comes to us by way of KENTUCKY HAPPY HUNTING GROUNDS magazine:

"Many of our more informed game management officials have long sought a curtailment of bobwhite quail stocking in this state as being unprofitable, but the state of Tennessee has proved the point and we of this Commonwealth might well consider following their lead.

"In the past the Volunteer state produced approximately 60,000 quail of which 40,000 were given to sportsmen's clubs to raise and release at their own expense. Due to mortality in the rearing process, only 75% (or about 30,000) of these birds lived to be released. The state released nearly 20,000, making a total release of 50,000 birds yearly.

"From the bands returned it is estimated that only 3% (or 1,500) of these birds were killed by hunters. The estimated total kill of quail in this state is one million birds per year and there are approximately 163,000 quail hunters in the state. The quail kill divided among these hunters would average about 6 birds per hunter for the season. The 1,500 birds provided by the artificial progagation program would only average .01 bird in each hunter's bag, or one bird for each 100 hunters. It cost about $1 to raise a quail to a releasable size which means that each of these birds bagged cost about $33. Pretty expensive sport!"

Each pen-raised quail bagged by Tennessee hunters cost about $33. See text for details.

Grady Barnes and Charles Woodhouse aver that the proof is in the pudding, and birds in the bush are worth something. Last year the Alamance County Wildlife Club sponsored a food cover planting contest for FFA boys attending Alamance County schools. Contest entries had been narrowed to a field of six when Woodhouse and Barnes were called in for the final judging. Needless to say their task became quite diverting when during the course of examining the six plantings three coveys of bobwhites were flushed.

Planting consisted of a combination of shrub and sericea lespedeza, and annual seed mixtures that were established early last spring. Give old Bobwhite a place to live and he will take care of the multiplication problem.

"Dear Sir:

"Will you please send me some animals on wildlife.

Johnny Coley"
(No address)

If Johnny reads this we hope he will send us his address so we can tell him we can't send animals, but we can send information about them.

"Dear Sir:

"In the last issue of WILDLIFE IN NORTH CAROLINA, there was an article about the re-stocking of raccoons. I have always thought a "coon" was a very interesting animal and would like to obtain a pair or two for my place in the north western part of Durham County.

"Would you be so kind as to tell me where I might obtain such—of course, I would be willing to pay for them. I believe they would thrive very well here although they might make the farmers a bit mad when they begin to miss some corn.

"We all here read your magazine and feel that you folks are doing a lot for our wildlife program.

Sincerely yours,
Paul B. Phillips, Durham"

We wrote Mr. Phillips telling him how to get the 'coons.

Following are a few of the requests we received for extra copies of our November issue. Sorry to say, the supply of extras is completely sold out.

"Dear Sir:

"The cover of this month's (November) WILDLIFE is so tremendously humerous that I would like a couple of extra copies for friends. Enclosed is 25 cents to cover cost and mailing.

"Thanks.

Sincerely yours,
Harry Summerlin, Durham, N. C."

"Dear Sir:

"I would appreciate very much your sending me about 6 copies of the November issue of WILDLIFE IN NORTH CAROLINA, which has the painting of the two 'coons on the cover.

"I have heard many subscribers express their immense delight at the amusing cover and also the one which came out sometime ago with the bear reading the WILDLIFE magazine, with the trophies of the hunter, hound, and gun on the wall.

"Thank you very much.

Sincerely yours,
John D. Savage
Wildlife Protector, Granville Co."

"Dear Sir:

"Congratulations on your magazine cover of WILDLIFE IN NORTH CAROLINA (November 1958)! We thought it so charming that we could not resist clipping it for our bulletin board.

"Please send us two additional copies of this issue.

"Thank you.

Sincerely yours,
INSTITUTE OF GOVERNMENT
Mrs. Catherine Maybury, Librarian"

Photo by Rod Amundson

YOUTH IN CONSERVATION

The Sportsman's Wildlife Club of Greensboro and Guilford County has recognized that food and cover are the most significant means of producing farm game, and has put this recognition into practice. At a recent meeting of the Sportsman's Wildlife Club Worth F. Moser, president of the club (left) presented a championship trophy to Agriculture Teacher E. A. Adams (right) of McLeansville High School. The trophy was won by Stephen Cobb (center), FFA student at McLeansville High School, for making the best farm game habitat planting in Guilford County.

A total of 88 FFA boys in eight schools participated in the wildlife habitat planting contest, and the winner from each school was presented with a permanent trophy. The championship trophy goes to the winning school each year, this year to McLeansville High.

Club President Moser said the the club has already received more than one hundred applications for the coming planting season, with more expected. Planting materials, including annual food mixtures, shrub lespedeza and multiflora rose, are provided for such projects by the Wildlife Resources Commission.

"Dear Sir:

"I am interested in purchasing a tract of land of 400 to 500 acres that would be suitable for developing as a personal bird and game reserve. No housing on the property is required, however, it should be of easy access and suitable for developing thirty to fifty acres as pasture land.

"The State of North Carolina has been recommended, therefore, I would appreciate any information as to area and city or person I may contact for detail information.

Very truly yours,
C. A. Overstreet
Creole Petroleum Corporation
Apartado 3088, Maturin
Estado Monagas, Venezuela"

This letter came to use via the State Advertising Division. Perhaps some of our readers can tell Mr. Overstreet where he can get some land.

North Carolina is well-dubbed Variety Vacationland. A group of sportsmen from Claremont, Martin Keisler, Clyde and Randolph Cloninger went to Nags Head for some surf fishing. When a nor'easter blew them off the beach they headed to Mattamuskeet for some wildfowling. This picture, unposed, shows their bag of geese, ducks and a merganser, plus fishing tackle, guns and the other bric-a-brac sportsmen haul around. Their guide was Arlen Swindell. (Photo by Rod Amundson)

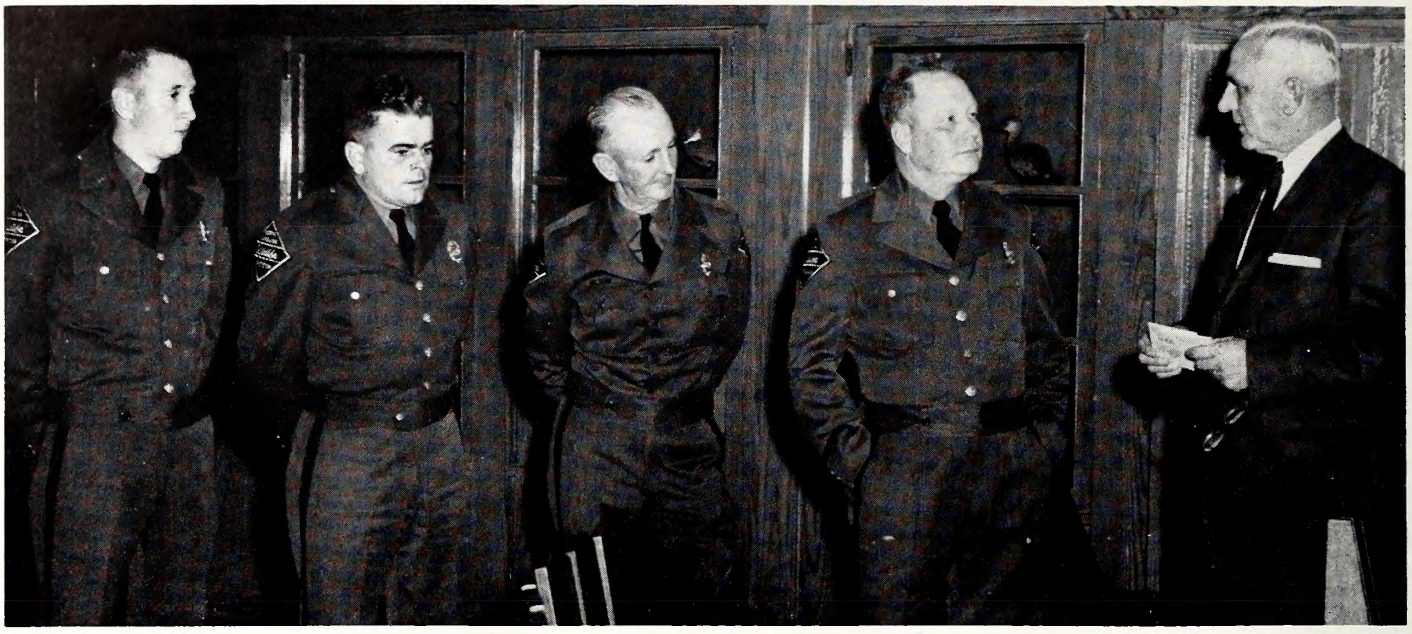


Photo by Rod Amundson

Subscription Contest Winners

Thurman Briggs, Vice Chairman of the Wildlife Resources Commission congratulates winners of the 1958 subscription sale contest for WILDLIFE IN NORTH CAROLINA. Left to right are Jimmy Martin, fourth place, John O. Brown, third place, J. D. McLean, second place, and Eugene Jones, first place. The men were awarded checks as prizes. All personnel participated in the sales campaign which lasted from August 15 through October 31, and a total of nearly 18,000 subscriptions were sold. This makes WILDLIFE a top ranking publication in the State.

THE SWEETEST MUSIC IN ALL THE WORLD

by Ron McCarter—Graham, N. C.

When comes the cold and frosty morn
With the crisp autumn air and the sun new-born,
The farmer stops and leans on his hoe,
For before him, down in the meadow below

A hound has bayed at the scent of a hare,
And soon the whole pack has assembled there.
The scent is cold. The farmer thought,
"It'll take some time,
But one'll hit it, out of the nine!"

Big Red struck it off, Molly did too,
Then Birch, then Lady, then Buck, and then Blue.
Even the pups knew the scent was now hot,
For they were in there squealing whether they smelled it or not

The farmer listened, all serene and alone,
As each hound opened with his own note and tone,
And there in the meadow before him unfurled
The sweetest music in all the world!

"Dear Sir:

"I like WILDLIFE magazine with its many true stories about fish, and also "Careless Joe" and "Crackshots and Backlashes". I have been getting WILDLIFE for three years and have renewed for the coming year. I am nine and will be ten in May. I have a dog, and when I put bread crumbs on the ground for the birds he eats the crumbs. Will you send me the answer?

Sincerely yours,
Julian M. Humphries
Charlotte, N. C."

We would suggest tying up old Rover or putting the bread crumbs in a bird feeder where he can't get to them.

"Dear Sir:

"You may consider this a letter for your magazine WILDLIFE IN NORTH CAROLINA. I have been a subscriber four years and look forward to receiving my copy each month.

"One question I would like to have clarification on or information concerning is in regard to the Commission's regulations governing hunting, Regulation 6-58. In this regulation, B. DEER; 1. Open Season *Exceptions: (c) states in part "and those parts of Beaufort and Craven Counties between Vanceboro and Washington west of U. S. Highway No. 17 and north of N. C. Highway No. 118; also those parts south of N. C. Highway No. 33 and west of the east side of the Grey Road beginning about one mile north of Vanceboro are closed to deer hunting." I would like to know if this regulation would in any way affect any or all types of hunting within the aforementioned boundaries?

"Call it stupidity if you will, but when, in the June issue of WILDLIFE, it was suggested that all hunters construct squirrel boxes I just couldn't find the time. I hope I will not be too late, but I intend to make at least five, maybe they'll help next year. Would like to know if the cause for the poor crop of squirrels in this area has been determined.

"Thanks you very much!

Sincerely yours,
TSgt. Charles E. Labby, Jr.
Vanceboro, N. C."

The regulation involved pertains only to deer, and does not affect other species on which there may be an open season in that area.

Radioactive Waste Disposal

Coastal states are becoming increasingly concerned about the offshore disposal of low-level batches of radioactive waste materials because of the hazard to sport and commercial fishing. Present Atomic Energy Commission regulations allow the disposal of these low-level wastes in 1,000 fathoms of water and wastes are presently being dumped off both coasts.

Until now there has been no conclusive evidence of damage to marine life. However, there has been little effort to evaluate effects through biological monitoring programs. Lack of evidence may merely reflect lack of investigation.

At least one state (Califorina) feels that the present regulations are not adequate. It has suggested

that the regulations be tightened up considerably. California believes the minimum depth of disposal waters should be at least 2,000 fathoms and that they should be in specified areas.

The California Department of Fish and Game has also conducted recent studies on containers now used for radioactive wastes under present AEC regulations. It was found that barrels now being used for wastes ruptured before the materials were lowered 1,000 fathoms. Consequently, some of the wastes were being released in the upper surface layers of ocean instead of being stored on the bottom as intended.

With low level wastes the chance of creating a public health hazard seems remote with present quantities of these wastes. But the California studies have shown the necessity of carefully reviewing radioactive waste regulations to provide needed protection to marine life. The time to act is now, before we get into major radioactive waste disposal problems resulting from increasing industrial nuclear power generation.

Handbook on Game Cookery Available

A famed handbook on game cookery, "Small Game for Dinner," by Anna Margrethe Olsen, has been reprinted for hunters and their wives by the Conservation Department of Olin Mathieson Chemical Corporation, the Wildlife Management Institute reports.

Copies of the handbook were exhausted soon after it was published by Iowa State College in 1947. The author is a research associate there.

The new 36-page illustrated edition includes all original recipes and tips for preparing and handling small game. One of the most valuable sections is on treating freshly bagged game in the field and bringing it home in top table condition. A section for the hunter's wife covers aging and freezing wild meats, table-dressing and dealing with small game in the kitchen.

Other sections include tips on tenderizing tough game, increasing flavor and juiciness, and preparing garnishes and trimmings. There are basic methods of cooking game with dry and moist heat and detailed recipes for everything from jugged game and gravies to barbecue sauces and popped wild rice. Advice also is given on making a game dinner a festive family occasion.

The booklet includes opossum, raccoon, rabbit, squirrel, and muskrat cookery and is a handy reference for the home end of a hunting trip. Free copies may be obtained on individual request from the Conservation Department, Olin Mathieson Chemical Corporation, East Alton, Illinois.

Use this blank to subscribe NOW—$ .50 a year $1.00 for two years. No stamps, please.

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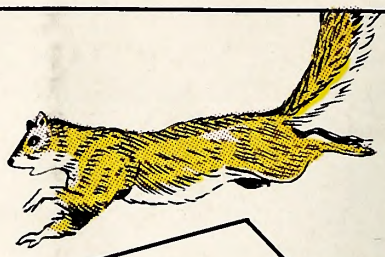

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WILDLIFE RESOURCES COMMISSION
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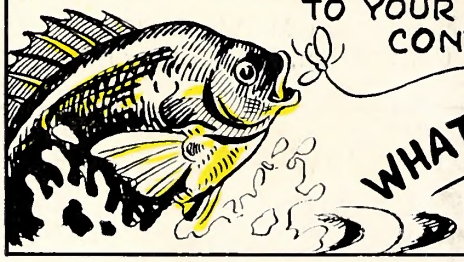

WHAT A BARGAIN!

AL BARRETT

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Wildlife

FEBRUARY-1959

TEN CENTS

in north carolina

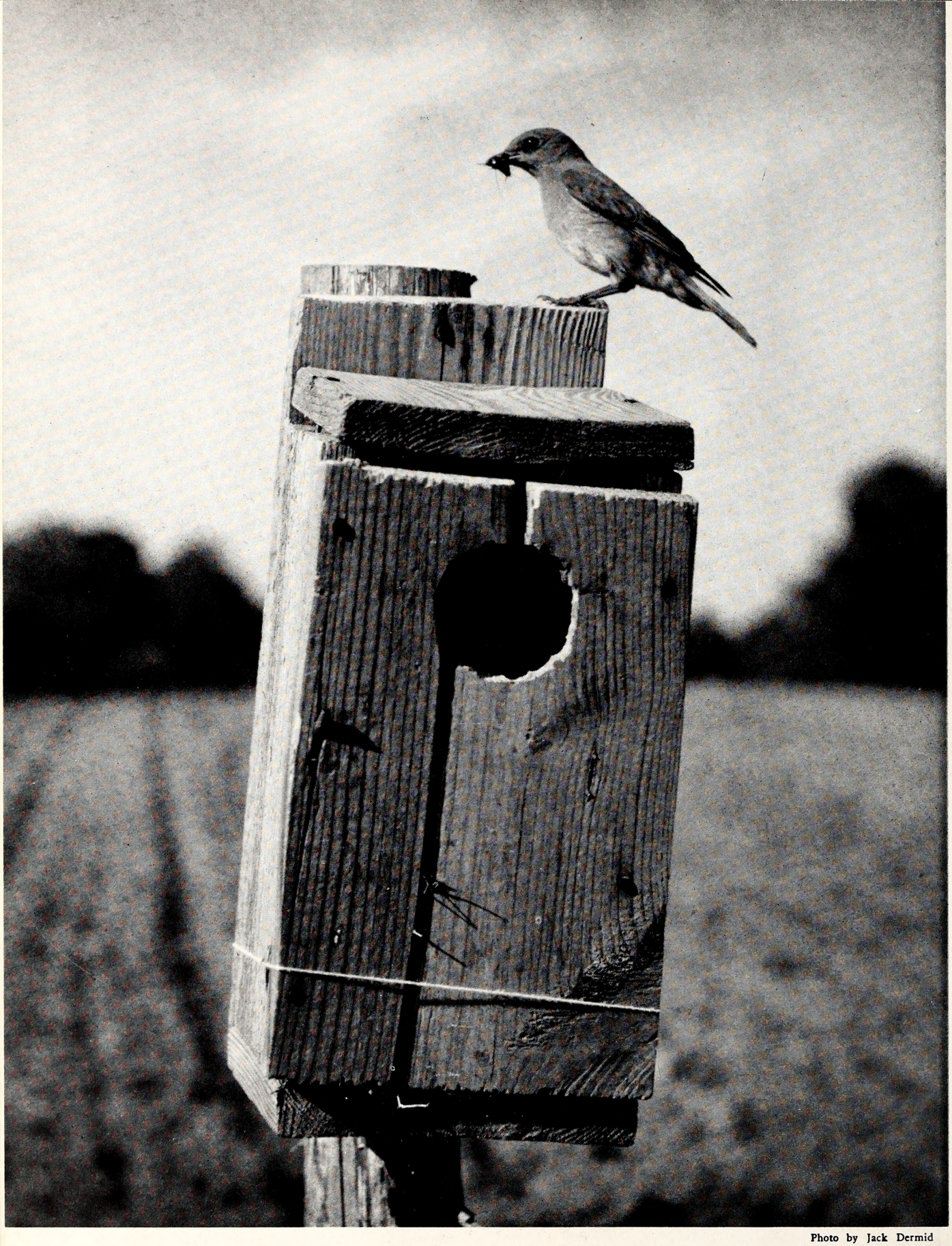

Photo by Jack Dermid

No Vacancy

Ten-year-old twins Barry and Garry Edwards of Siler City built three bluebird houses last spring and erected them in their back yard. Two of the houses were painstakingly made to perfection, while a third one was hurriedly tossed together. A string was needed to hold its split front in place, but the house attracted tenants. In fact, it was the first house used by bluebirds out of 301 houses put up in Siler City and vicinity as the result of a school project. **See page 12 for story.**

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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ROBERT M. CARR, *V. Chm.* ..... Wallace
T. N. MASSIE, *Sec'y* ..... Sylva
G. E. BEAL ..... Red oak
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JACK DERMID ..... Managing Editor
JIM LEE ..... Associate Editor
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COVER

Our February cover of one-day-old wood ducks in their nest at Dr. J. R. Hester's pond near Wendell reminds us that another nesting season is not far away and that it is time to check wood duck boxes on farm ponds for repairs and to erect new ones.

The natural nesting site of the wood duck is in a hollow tree, and as a result of clearing and timber improvement operations, hollow trees are becoming fewer each year. It takes nature a long time to make a tree cavity large enough for a wood duck to use, but it takes only a few hours to build an artificial nesting box with lumber. Free house plans can be obtained by writing the Wildlife Commission. So why not do a good turn for Woodie? What better project could wildlife clubs and youth groups have? Color photograph by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Aerial photo by J. P. Brady, Franklin, N. C.

NANTAHALA LAKE

This lake is one of our most promising—yet hardly touched by the fishermen

By Jim Messer
Fisheries Investigator

THE thousands of acres of U. S. Forest Service land within the Nantahala National Forest include some of the best-managed and best-protected watersheds in the eastern United States. In a valley in the heart of this extreme western North Carolina national forest, receiving water from several of its watersheds, is Lake Nantahala.

This lake was impounded on the Nantahala River in Macon and Clay counties in the early 1940's by the Nantahala Power and Light Company. Also known as Aquone Lake, the hydroelectric impoundment comprises 1,610 surface acres and is the largest single body of water designated as public mountain trout water in North Carolina. The elevation

of the lake at high water level is 2,890 feet. There are several tributaries but the Nantahala River is the most important water supply.

The headwaters of the Nantahala River originate at altitudes up to 5,500 feet and lie within the boundaries of Standing Indian Wildlife Management Area, managed by the Wildlife Resources Commission in cooperation with the U. S. Forest Service. The river and tributaries inside the refuge offer some of the finest brook, rainbow, and brown trout fishing in the state. The river flows for approximately eighteen miles from its headwaters to the lake. The smaller tributaries also originate on Forest Service property and all the water entering the lake is crystal clear and low in temperature.

ACCESS

The rugged terrain and extreme fluctuations in water level make boat launching in Nantahala Lake somewhat of a problem. This has been lessened to a great extent by the Wildlife Commission's purchase and development of an access area on the Big Choga Creek arm of the lake. Except during periods when the water levels are extremely low, this area offers a boat launching site which can be reached from Andrews, North Carolina. Within recent months the Commission has purchased another tract of land which, when developed, will offer a boat launching site on the Franklin side of the lake.

ACCOMMODATIONS

There are few overnight accommodations on Nantahala Lake. Most fishermen staying overnight camp along the shore where the Nantahala River enters the lake, or next to Wayah Road where Jarrett Creek enters the lake.

FISH POPULATIONS

Nantahala is like "a lake on top of a lake." It is located in the extreme southern range of the Appalachians and a large part of its surface is exposed to the sun. Although the lake is nearly 3,000 feet in elevation, the hot summer sun tends to warm the surface. The warm surface temperature and the cold-water trout streams entering the lake result in two distinct types of game fisheries. These two types of fisheries seem to be for the most part independent of one another. The warm-water species include smallmouth bass, largemouth bass, walleye, bluegill, robin, crappie, and northern rock bass. Separated from this warm-water group of fish and inhabiting deeper water with colder temperatures are the large, lake-run rainbow trout.

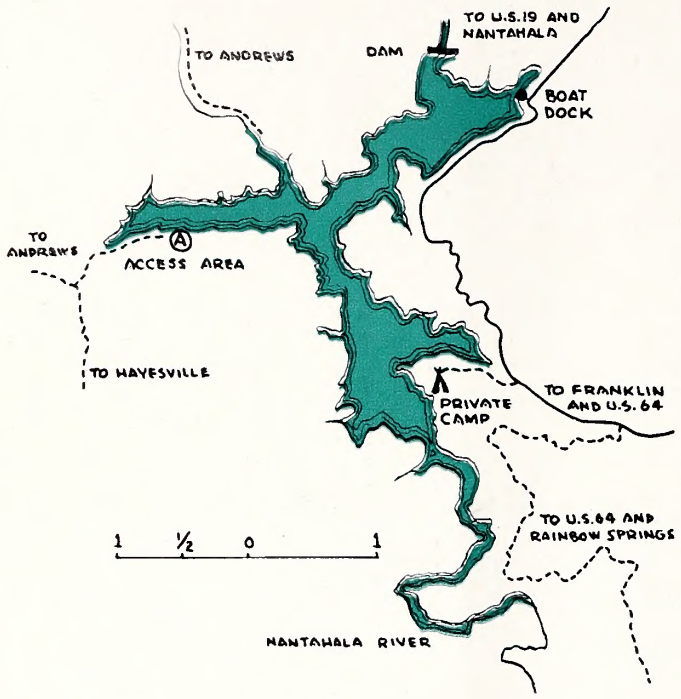
THE WARM-WATER FISHERY
Smallmouth and Largemouth Bass

The possibilities for catching smallmouth and largemouth bass in Nantahala are almost fantastic. During the hottest period of the year, when bass fishing in most Tarheel lakes begins to slow down, smallmouth and largemouth bass fishing in Nantahala is at its best. During July, August, and September, one of the best ways to take smallmouth bass is with small surface lures. Best results can

Photos by Jim Lee

Nantahala Lake provides ample room for water sports such as sailing, water skiing, and swimming in the cold clear water.

The Choga Creek Fishing Access Area built by the Commission gives the anglers entrance to the lake from the western side.



Nantahala has a surface area of 1,610 acres when the impoundment is full, with water supplied by the vast forested areas.

usually be obtained using a fly rod equipped with a long leader and a small popping bug, hair-bodied bug, or floating sponge spider. Even a small sponge spider will provoke a strike from a large smallmouth.

Regardless of the lake they are in and what other species of fish are in the same water with them, smallmouth bass are characteristically moody, even more than most other game fish. For this reason, fishing for them will always be better at certain times than at others. But when one of these energetic bronze-backed critters makes up his mind to strike the little bug twitching on the surface, he can turn the general vicinity into a good-sized explosion. When hooked, smallmouth bass seem to run out line "in every direction at the same time" and then, as a change of pace, suddenly come out of the water and spend most of their time fighting in the air. Many ardent fly and spin-fishermen rate the smallmouth bass as the greatest fresh-water game fish.

Although not as highly rated among some circles as the smallmouth, largemouth bass are also plentiful in Nantahala Lake. The fisherman casting his little popping bug from a boat drifting with the wind parallel to the shoreline may catch as many largemouth as smallmouth.

There are a few things that a fisherman can do to help him take bass in Nantahala with fly rod and small popping bug: use a *long* leader, the longer the better; and use 6-pound test for the leader. Another is to cast quarterly ahead of the boat, getting as much distance as possible and setting the bug down close to the shore. Keep a low silhouette

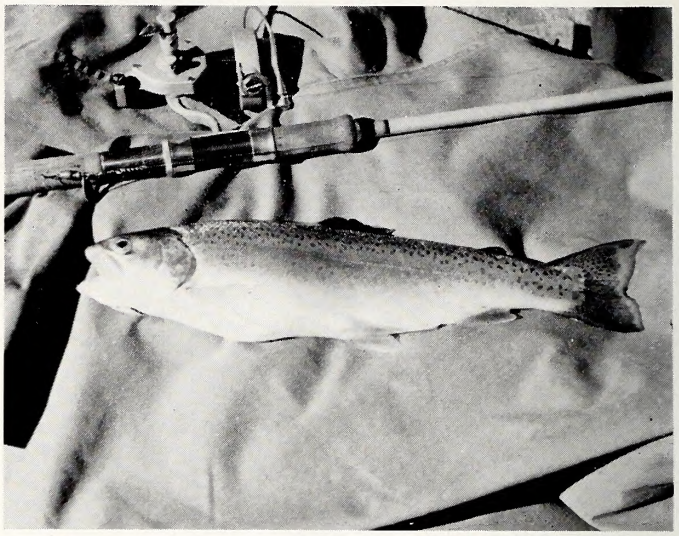


Photo by Jim Messer

This 17-inch rainbow is typical of the trout that live in the deep water of the lake and swim up Nantahala River to spawn.

by sitting down in the boat. The water in Nantahala Lake is crystal clear and if the bass *see* the fisherman casting toward them, chances are they won't "stick their necks out."

Bluegill and Robin

Bluegill and robin are relatively abundant in Nantahala Lake, and despite the comparatively cold water, many grow to a very large size. Catches of bluegills ranging up to 10 inches are not uncommon. A few of these larger bluegills are sometimes taken during cold weather by trout fishermen. During the hot summer months, bluegills stay fairly close to shore and can be taken on the same little sponge spiders that take smallmouth bass.

Crappie

During the 1957 and 1958 fish population studies, few crappie were found in Nantahala Lake. Crappie reproduction during both years was poor. A few catchable-sized crappie are present but the species does not greatly contribute to the sport fishery of the lake.

Walleye

Walleye were introduced into the lake four or five years ago. During the 1957 fish population study, only two walleyes showed up in the fish sampling and netting. One of these, however, was a 7-inch specimen, the first real evidence of successful spawning in the lake. During the 1958 study, eleven walleyes were taken, ranging all the way from 3 inches to 15 inches. It should not be too long before a good population of this species develops.

A large portion of the community of warm-water fisheries in Nantahala is made up of smallmouth and largemouth bass, and these two species provide most of the sport fishing each year from late spring until fall. When late fall rolls around with its cooler air and water temperatures, the bass fishing begins to slow down and an entirely different type of sport

Photos by Jim Lee

Camping is permitted beside the Choga Creek area. Here Commission biologists were camped last summer during a lake survey.

College students are employed during the summer to investigate the fish populations in public waters such as Nantahala Lake.

fishing begins; it is at this time that the large rainbow trout begin to move toward the tributaries.

THE COLD-WATER FISHERY
Rainbow Trout

The Nantahala River and other tributaries and the Nantahala Lake form a relationship that provides almost ideal environmental conditions for a good population of rainbow trout. Rainbows, being migratory by nature, characteristically move down into big water where they live and grow and then, in late winter and very early spring, move back up the streams to spawn. The trout spawn very successfully in the Nantahala River.

The trout which live in the deep cold waters of the lake all year—except for their annual journey up one of the tributaries—are usually very large. In the lake they may grow as much as 8 inches in just one year. Many of them 18 or 20 inches long are not any older than some of the much smaller rainbows found in streams.

At the beginning of their journey up the stream, and upon their return, the big rainbows seem to congregate near the mouths of the tributaries, and it is here that most of the trout fishing is done.

Quite a bit of variety is used in methods of fishing for these rainbows, but the most popular method is to fish with worms on the bottom of the stream channel a hundred yards or so from where the stream enters the lake. Many of the trout fishermen anchor their boats just off to the side of the channel of the Nantahala River and cast "globs" of worms out over the channel, letting them sink to the bottom. A large part of the trout fishing is also done from the bank.

As winter sets in, spin-fishermen catch good rainbows on small spinners and spoons, and on some of the cold dark winter days, good rainbows are taken on wet flies. The trout are usually anywhere from 13 to 24 inches long. Regardless of which method is used, catching one of these big rainbows can be the thrill of a lifetime, if the fisherman has a "true love" for trout.

It takes a rugged individualist to fish for trout in Nantahala Lake during the cold winter months. The wind blowing across the lake is piercing cold and the boat fisherman must take a chilling boat ride before he can reach an area where the trout might be congregated. The bank fisherman planning to fish in the backwaters of the Nantahala River must either go bouncing in a jeep down the trail which leads from the road near Rainbow Springs, or he must climb down the mountain side —almost straight down—from the Forest Service road above the lake.

Why all this fishing activity during the coldest part of the year? It's all because a trout is a different kind of fish, and a trout fisherman a different kind of fisherman. No sudden rain storm or cold snap is going to chase the trout fisherman away from the shore of the lake.

To the man who has not yet cultivated a "true love" for trout, the whole activity of fishing for them, especially during cold weather, may be something he just doesn't understand. The man on the shore of the lake, patiently waiting for a bite, *does* understand it, and even though he's probably shivering with the cold, he's at peace with the world. Beyond the shadow of a doubt, he will find himself back again at the same spot on a day when the trout just aren't hitting. On such a day he may not catch any trout at all, or he may hook just one trout and then lose it. But when he is back home by the warmth of his own fireplace, he will certainly still remember the big purple and silvery rainbow thrashing on the end of his line in the clear cold water. The memory alone is more than enough to make him always want to go back to Nantahala Lake.

TECHNICAL REPORT

FERTILIZATION of Multiflora Rose

Here is how you can improve growth of wildlife cover on Piedmont soils

By Arnold O. Haugen and Daniel W. Speake
Alabama Cooperative Wildlife Research Unit

SEVEN experimental hedges of multiflora rose were planted on Piedmont soils in east central Alabama in 1950. A total of 4,939 feet of single-row living fence hedges was planted. Some of this was set in clay subsoils since the topsoil in places had been eroded. Land preparation consisted of plowing and disking a narrow strip of ground. A furrow was then plowed down the middle of the cultivated strip. Either 6-8-4 or 4-10-7 fertilizer at the rate of roughly 100 pounds per 1,000 feet of furrow was applied. The fertilizer was mixed with the soil by running the plow back through the furrow. The rose plants were then spaced in the furrow at about two-feet intervals and the roots covered with the aid of a plow.

All patches were refertilized at the rate of 100 pounds per 1,000 feet of row in the spring of 1952, and five of the seven hedges were again fertilized at the beginning of the fifth growing season in 1954.

The rose plants on the most eroded and infertile soil sites responded poorly and added little growth during the first five growing seasons. Summer droughts were partly responsible for the poor growth. An attempt to speed up growth by mulching with sawdust and in one case with some manure and other debris from a mule yard failed to produce the desired results.

On recommendations of Dr. Henry Orr, Agricultural Experiment Station, Alabama Polytechnic Institute, a definite plan for periodic refertilization was adopted. Plans called for monthly applications of three pounds of 6-8-4 per 100 feet of row from April to July. No applications were to be made later than July in order to permit a slowdown in growth and the hardening of the new wood in order that the plants could withstand fall freezing. The first such systematic application was made in June and the second in July, 1955, at which time the patches were in their sixth growing season. In 1956, six of the hedges received monthly applications in April, May and June. By the end of 1956 a total of about 41 pounds of fertilizer had been applied per 100 feet of rose fence. This had been applied over a period of seven years.

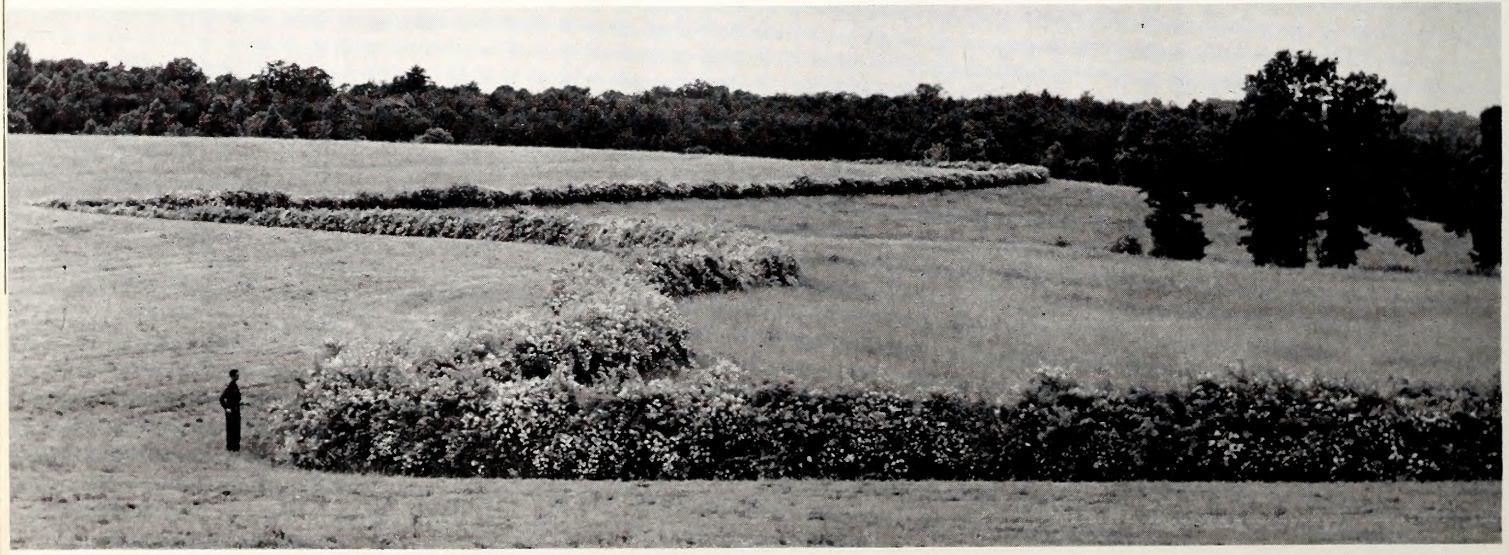
A striking response to monthly fertilization during the 1955 and 1956 growing seasons was noticed. Favorable weather may have been partly responsible. By the end of 1956, it was obvious that further fertilization was undesirable except at a few "weak" spots. The hedges in general had become much larger than necessary for the purpose of a living fence. It appears that monthly applications of 6-8-4 fertilizer during the growing season added to the extent of growth. Both spring and summer growth was considerable.

These results suggest that systematic monthly applications of fertilizer are necessary for adequate growth of multiflora rose, especially when planted on poor soils such as eroded spots of the Piedmont.

Mr. Haugen is presently leader of the Iowa Cooperative Wildlife Research Unit, while Mr. Speake is assistant leader of the Alabama unit. The Alabama unit is jointly sponsored by the Alabama Department of Conservation, Alabama Polytechnic Institute Agricultural Experiment Station, United States Fish and Wildlife Service, and the Wildlife Management Institute.

Multiflora rose responds vigorously to monthly fertilization during spring and early summer. See text for instructions.

Photo by Jack Dermid



Many thousands of starlings, blackbirds, and robins return every evening to their

WINTER ROOST

Photo Short by Jack Dermid

IT was late one February afternoon. We had not seen any blackbirds and decided to inquire at a farmhouse near Warrenton about the huge roost that was nearby.

"Oh, the birds will come all right; been coming every evening since about Thanksgiving," the lady informed us. "Too many to count—thousands of billions."

As the sun neared the horizon, the vanguard flocks, numbering one to several dozen birds each, began to appear. The blackbirds did not fly directly to the roost, but collected in scattered treetops or milled about in the vicinity. One tree that we were watching soon had every available perch occupied, the birds resembling big, black plums against the sky. Then, as if by signal, the whole flock took wing to join an incoming flight.

Soon the birds were coming from all directions, flocks merging to form larger flocks, then literally waves of birds. The birds began to converge upon a patch of pine woods, and we drove down a lane for a closer view. Binoculars revealed that about 90 percent of the "blackbirds" were starlings, while the remainder were red-winged blackbirds, robins, and a few cowbirds—perhaps 100,000 of all species.

"The flock has dwindled," commented Alton D. Pridgen, Warren County wildlife protector. "Earlier in the season, there must have been a million birds."

As twilight deepened, the flocks descended into the grove of pines and quieted down. But later that night, Charlotte Hilton Green, author and naturalist, Bill Craven, and I decided to pay the roost a visit.

We entered the woods as quietly as possible in an effort not to disturb the birds, but a snapping twig caused a noisy commotion overhead. A blast of cold air struck our faces as thousands of wings beat in unison. The birds did not fly, but apparently shifted about on their perches. They were in the very tops of the pines and difficult to see even with a flashlight.

Then we discovered that the robins did not associate with the other species. They were roosting in groups of three to six individuals in the understory trees and honeysuckle. The robins were not disturbed by our visit, and it was easy to take flash pictures of them from a few feet away.

We left the roost with only one regret. Next time, we vowed to wear raincoats.

The robins did not roost in the treetops with the starlings, blackbirds, and cowbirds. They were easy to photograph.

It Can't Happen Here?

By Bill Hamnett

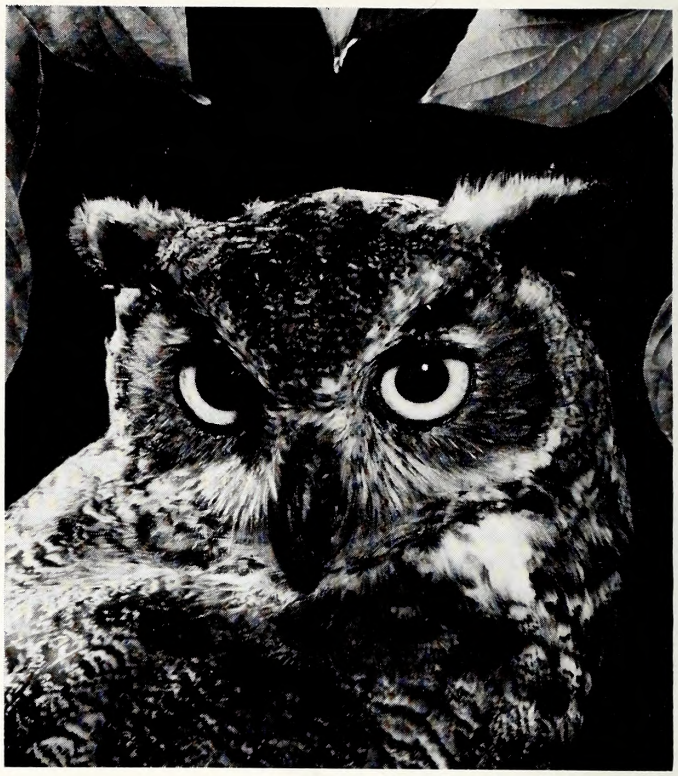


Photo by Jack Dermid

Predators, such as this great-horned owl, play an important role in the balance of nature and in most instances deserve complete protection. Without natural checks, mice and other such species with high breeding potentials could overrun the land.

SURE it can—but we had better take another view of this predator relationship of our wildlife species, because we may be cutting off our nose to spite our face. There was a time in wildlife management when much emphasis was placed on predator control as the salvation of the then dwindling supply of wildlife species.

Subsequently, through observation, study and research it was evident that predators had an important role in the success and failure of wildlife populations. When one undesirable species was singled out and made the subject of a "hate campaign." there developed lateral and oblique influences not fully realized or understood at the time. A natural check was removed on some species which in turn overran much territory—destroying food, cover and shelter used by other species. Today we list unprotected predatory species mainly because it is a holdover of time past, and also because the general public is not familiar with the role of predators in helping to maintain an adequate supply of wildlife species we may harvest.

Here are two illustrations of how predator control has gone too far, even today. Let's not allow such a problem to develop here in North Carolina.

A horde of lowly meadow mice, swarming over fields and stripping them of foodstuffs planted for ducks and geese, has forced thousands of waterfowl to hasten their migrational flight, the Wildlife Management Institute reports.

It happened this past fall in the Klamath Basin, the famous waterfowl crossroads of the West that straddles the Oregon-California boundary. The tremendous build-up of field mice is causing concern among public health authorities as well as farmers and wildlife people. "What grain the mice have not eaten, they have buried for their winter stores," says the Oregon State Game Commission. "They have perforated ditch banks, making water control difficult."

The mice appear to be increasing despite concentrated applications of poisons, and economic losses, as last report exceeding $5 million. Ironically, many disappointed water fowl hunters are said to have *blasted away at the large number of hawks and owls that were attracted by the army of mice.*

Coyotes are getting a break in Colorado. Cattlemen controlling more than 200,000 acres of land have posted signs reading, "Coyotes Protected—no hunting, no shooting, trapping or poisoning coyotes on this land."

It seems that a campaign to poison the predator was too successful. Now, the ranchers claim, hawks, owls, eagles, weasels and coyotes have virtually disappeared from the range and there's the rub. Rodents, particularly the pocket gopher, multiplied unchecked, being freed from the predatory pressures of the coyotes and birds. The cattlemen estimate the rodents now have eaten more than 30 percent of the range with forage losses of more than $3 million.

So now the coyote is being protected by those who formerly despised him.

Nature has had a tremendous influence in making our state as great as she is today. Let's recognize her for the good she does and learn what she has to offer by keeping everything in balance to the best of our ability.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Wildlife Commission Proposes Legislative Slate

At its January meeting the Wildlife Resources Commission discussed legislation it would like to see passed by the 1959 Legislature scheduled to convene February 4. One proposed bill would make careless and negligent use of hunting weapons a misdemeanor and require hunters involved in hunting accidents to render aid to injured persons, and would impose fines and revocation of hunting privileges upon conviction. Another bill would create a special nonresident hunting license costing $5.25 for persons hunting on controlled shooting preserves. Such licenses would be valid only on such preserves, and would attract nonresident hunters. Further, the Commission will request authorization to equip its patrol cars with sirens and red signal lights. The Commission also considered the possible effects of a boating safety law on the wildlife conservation program.

Managed Big Game Hunts Successful

Reports received from checking stations on wildlife management areas indicated that during the past season 29,304 hunters took a total of 1,568 deer (including 376 antlerless deer), 43 bear, 18 wild boar and 34 wild hogs. The hunts were conducted on fifteen wildlife management areas, some state-owned and some by cooperative arrangements with the U. S. Forest Service. Big game areas have been established by the Wildlife Commission's game management program over the years, and have added greatly to the amount of territory available to big game hunters. Archers, ever increasing in number, bagged 44 deer and four wild hogs during the hunts.

Tar River Access Area Okayed

The Wildlife Resources Commission has authorized the purchase of three acres of land on the Tar River near Greenville in Pitt County at $200.00 per acre. The area is considered desirable from the standpoint of engineering and development, and will serve anglers in the Greenville area.

Trout by the Ton Available for Mountain Streams

About March 1 Wildlife Commission fish hatchery trucks will begin distributing about 55 tons of keeping-size trout in designated mountain trout streams in the Mountain Region. The initial stocking will take place before the trout season opens April 4, with follow-up stocking to be done as the season progresses. In total number, well over 200,000 trout will be stocked.

Housing Project For Bluebirds

Photo Feature by Jack Dermid

THERE was no housing shortage for bluebirds in Siler City last spring. In fact, there was a construction boom. Pupils at Paul Braxton Elementary School were the builders, and before their saws and hammers were put away, they had finished 301 new birdhouses.

The bluebird housing project had its beginning during the winter when Lunette Barber, Commission education representative, visited the school to show a film about birdhouse construction and to assist the faculty in planning conservation projects for their classrooms. Miss Barber gave Mrs. Paul Braxton, school secretary and wife of the principal, a simple bluebird house plan—and a challenge for a school-wide building project.

Mrs. Braxton accepted the challenge. Using the plan as a guide, she made a set of paper patterns for each of the 23 teachers in the school. Then, each teacher helped her pupils make patterns of their own and encouraged them to take them home and build a birdhouse, either by themselves or with the help of parents. The project was strictly voluntary, and the youngsters built the houses because they wanted to. Of 710 pupils in the school, 301 returned within two weeks with a birdhouse—an outstanding accomplishment made possible through the inspiration and guidance given the children by Mrs. Braxton and their teachers.

Besides house building, the project included a school-wide study of the life history of the bluebird. During the two-week construction period, a bluebird calendar was maintained in each classroom, and pupils were encouraged to look for bluebirds each day and record their observations. Over 1,900 bluebirds were seen. As a follow-up, the youngsters were encouraged to watch their birdhouses throughout the nesting season. By the end of the school year, 121 houses had bluebirds for tenants. Indeed, parents as well as students in Siler City became bluebird conscious last spring.

For many years, Mrs. Braxton has pushed nature study as a hobby for young people. She works tirelessly with the teachers in her school and encourages them to coordinate conservation projects with their other school work. Besides bird study, school projects have included snakes, mammals, butterflies, insects, frogs, shells, and wild flowers.

"This way we try to reach every child, let him find an interest that suits him," said Mrs. Braxton about the school's program. "I feel that each child that learns to love things in nature is never bored and will always have a wealth of memories to carry him through life. We try to open the eyes and hearts of young people so that they can see and appreciate the world about them. I also feel that nature study will help solve the problem of juvenile delinquency."

The parents in Siler City are proud of their school's accomplishments in conservation and want the work to continue. For example, the school library has a fine collection of nature books, many of them donated by the local garden club and by individuals as memorials to late friends and relatives.

The bluebird houses are waiting for their tenants to use them again this spring, but the faculty and students of Paul Braxton Elementary School are not standing still. They are busy developing a nature trail in the wilds beyond the city limits.

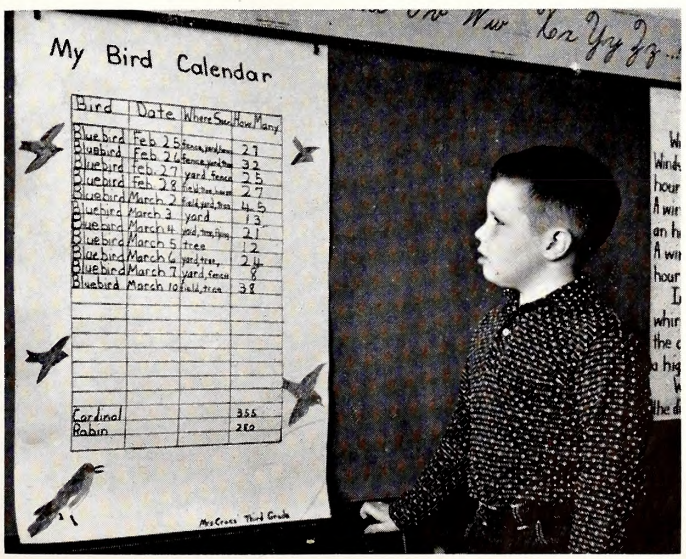
During February last year, students at Paul Braxton Elementary School in Siler City built and erected 301 birdhouses. Of these, 131 were in use by bluebirds before school ended.

Competition for the first bluebird occupancy was keen among students, and houses were checked daily. Winners were Barry and Garry (left) Edwards. See picture on inside front cover.

Lunette Barber (above), Commission education representative, was impressed by the enthusiasm shown for wildlife projects.

Nature books, posters, and exhibits were in all classrooms. Shown is a bird nest display in Mrs. Lloyd Griffith's class.

Besides house construction, all students were encouraged to study bluebirds out-of-doors and record their observations.



AMERICA'S FASTEST GROWING SPORT

America's boating population continues to soar in spectacular fashion, according to the year-end statistical report on the boating industry announced jointly by the Outboard Boating Club of America and the National Association of Engine and Boat Manufacturers, national trade associations of the boating industry.

Some 37 million Americans participated in recreational boating in 1958, the report shows, up two million from the previous year. They went down to the water in 7,330,000 boats, a jump of 376,000 over 1957 figures, and they spent $2,085,000,000 at the retail level to have their fun on the water.

The report, indicating that boating is the fastest growing sport in the nation, is the second in an annual series issued by the two organizations, to provide the boating industry with important statistical information about itself.

481,000 motor boats numbered by the U. S. Coast Guard, including outboards over 16 feet, auxiliary sailboats and inboard powered craft.

314,000 other inboard motorboats on non-federal waters.

4,000 large inboard yachts and sailboats documented by the U. S. Bureau of Customs.

5,525,000 outboard motors in use, a jump of 385,000 over 1957.

3,620,000 outboard boats in the pleasure fleet.

1,600,000 trailers in use to provide mobility.

Facilities to handle this mammoth fleet, including waterfront berthing and launching facilities, totaled 10,000 units.

2,425,000 rowboats, dinghies, prams and other miscellaneous craft in use on all waterways.

774,000 inboard gasoline and diesel marine engines in use.

486,000 sailboats without power on all waterways.

The report shows that the average horsepower of outboard motors sold in 1958 jumped to 20.7, from the 1957 average of 16.3. Average price of motors sold was $370 in 1957, and because of the sale of larger motors, jumped to $466 to 1958.

Keeping America's pleasure boat fleet on the move in 1958 required 404 million gallons of gasoline and 22¼ million gallons of lubricating oil. And skippers spread 10½ million gallons of marine paints and varnishes to keep their craft shipshape.

New production of marine products during the year kept the nation's suppliers of raw materials busy. The boating industry consumed 171 million square feet of sheet plywood, 47 million pounds of aluminum and nearly 37 million pounds of fiberglass to build this year's additions to the fleet.

And in North Carolina, according to the report, there were an estimated 78,000 outboard motors in use as of December 31, 1958. The estimated annual sales for 1958 were 8,400 motors, representing a gain of nearly a thousand over the 1957 sales of 7,500 motors.

PROTECTOR OF THE MONTH

Wallace M. Carpenter

Wallace M. Carpenter of Three Mile, North Carolina, the Avery County wildlife protector, was born on November 28, 1906. He completed high school at Crossnore, North Carolina, and served in the U. S. Army for six years. Prior to employment with the North Carolina Wildlife Resources Commission on December 1, 1946, he was with the Prison Department. Mr. Carpenter is married to the former Miss Alma Dellinger, and they have two children.

ENFORCEMENT RECORD FOR DECEMBER

The Wildlife Protection Division acknowledges with sincere appreciation the assistance rendered by the personnel of the other divisions of the Wildlife Resources Commission and the other law enforcement agencies in the enforcement activities for the month of December, 1958.

Persons checked	32,331
Total prosecutions	722
Total convictions	694
Total cases not guilty	21
Total cases nol prossed	7
Total fines collected	$6,203.00
Total costs collected	$4,689.65

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is it a violation to take "rough fish" with a bow and arrow?

ANSWER: Special fishing licenses for taking rough fish with a bow and arrow during any one calendar year, or part thereof, in all waters of the State may be obtained upon payment of one dollar for the use of the Commission and ten cents for the use of the person authorized to issue the license.

KNOW YOUR WILDLIFE PROTECTORS

Save this complete roster of Protection Division personnel for future reference

RALEIGH OFFICE

James, Ben H., Chief	514 Glenbrook Drive, Raleigh	Res. TE 4-6064-Off. Ext. 7191
Hazel, Robert B., Asst. Chief	1005 Southerlund Rd., Raleigh	Res. TE 4-3240-Off. Ext. 7191
Charles, Helen	7 South West St., Raleigh	Off. Ext. 7191
King, Nancy	318 Powell Dr., Raleigh	Off. Ext. 7191

DISTRICT NO. 1	ADDRESS	COUNTY	TELEPHONE
Wooten, Howard L., SUPV.	General Delivery, Camden	Camden	4406 E. City
Earley, J. O., Jr.	209 Brinkley Ave., Plymouth	Washington	7041
Pierce, Lester	Rt. 3, Box 278, Elizabeth City	Pasquotank	5079
Barber, William Preston, Jr.	Box 35, Elizabeth City	Pasquotank	8106
Barnes, D. E.	Corapeake	Gates	2127
Bazemore, Henry L.	220 West St., Ahoskie	Hertford	3079
Cahoon, James L.	Fairfield	Hyde	None
Cohoon, Horace A.	204 Saunders Street, Hertford	Perquimans	4926
Dail, Harold R.	Gen. Del., Robersonville	Martin	4020
Evans, Robert E.	Edenton	Chowan	122 Centre Hill
Everette, Lindsay	Box 122, Windsor	Bertie	5206
Forbes, J. H.	Box 26, Grandy	Currituck	2172 Coinjock
McPherson, Harry	Camden	Camden	None
Mosley, E. L.	Box 141, Columbia	Tyrrell	2071
Register, Wade A.	P. O. Box 11, Kill Devil Hills	Dare	2706
Sawyer, Walter S.	Mamie	Currituck	None
Terry, J. T.	Plymouth	Washington	2081
White, William S.	Manns Harbor	Dare	364W1

DISTRICT NO. 2

Watson, Raymond A., SUPV.	Route 2, New Bern	Craven	MElrose 7-9146
Overton, C. J., Jr.	Aurora	Beaufort	WEbster 8-3511
Teseneer, C. M., Jr.	Wallace	Duplin	ATwater 5-3332
Barkley, Dennis E., Jr.	Box 481, Oriental	Pamlico	431
Bell, D. B.	Box 972, Kinston	Lenoir	6572
Edwards, John O.	Kenansville	Duplin	2252
Fraley, F. L.	Box 744, Washington	Beaufort	None
Hill, Melvin E.	Box 75, Hookerton	Greene	2048
Hudson, George N.	Box 247, Bayboro	Pamlico	2921
Jarrett, E. R.	Rt. 4, Box 370, New Bern	Craven	9449
Kennedy, John R.	Box 396, Burgaw	Pender	None
Koonce, Lonnie	Richlands	Onslow	3326
Mason, J. W. (Trainee)	Pollocksville	Jones	None
Metters, P. S.	Box 154, Jacksonville	Onslow	4450
Parker, Carlton R.	Pollocksville	Jones	6-2591
Rhyne, W. T.	Gen. Del., Morehead City	Carteret	6-5001
Sheppard, Preston	Rt. 1, Box 171, New Bern	Craven	2504
Spain, L. C.	P. O. Box 75, Aurora	Beaufort	WEbster 8-3011
Teel, J. O.	Rt. 6, Box 340, Greenville	Pitt	6324

DISTRICT NO. 3

Woolard, C. N., SUPV.	Box 562, Wilson	Wilson	3592
Johnson, S. R.	Greenwood Ave., Englewood, Rocky Mount	Nash	24745
Spain, C. B., Jr.	Gen. Del., Nashville	Nash	5191

DISTRICT NO. 3 (continued)

Boone, Charles A.	Box 354, Spring Hope	Nash	4326
Crews, Norfleet G., III	Rt. 3, Box 55, Henderson	Vance	5733
Howell, A. G.	Route 5, Goldsboro	Wayne	RE 5-2828
Hughes, N. B.	Jackson	Northampton	LEnox 4-2106
King, J. Harold	815 South 2nd Street, Smithfield	Johnston	WEbster 4-3295
LaRue, Keith D.	Box 254, Scotland Neck	Halifax	5107
Perry, Bob D.	Rt. 2, Wake Forest	Wake	EXport 5-2305
Pridgen, Alton D.	Rt. 3, Box 172, Warrenton	Warren	52-58-Warrenton
Rawls, Douglas L.	1203 St. Patrick Street, Tarboro	Edgecombe	TA 3-4734
Ray, Lacy M. (Trainee)	Route 1, Box 50-A, Rich Square	Halifax	None
Wilson, P. B.	Bunn	Franklin	4189 R. I. Mitchell

DISTRICT NO. 4

Caine, E. W., SUPV.	Box 924, Lumberton	Robeson	5423
Boswell, B. L.	Bolton	Columbus	GL2-3440
Chadwick, Oscar	Rt. 3, Fayetteville	Cumberland	3-2432
Bordeaux, Amos	Box 77, Ingold	Sampson	250-Garland
Bostick, Leory F.	Rt. 1, Box 36, Laurel Hill	Scotland	CRestview 6-3607
Bowmer, H. T., Sr.	Southport	Brunswick	GL7-4091
Coleman, James H.	Bolton	Columbus	GL2-3230
Culbreth, Sam	Elizabethtown	Bladen	3255
Forbis, Gilmer S.	Box 3231, Fayetteville	Cumberland	2-5427
Gause, David L.	Box 235, Shallotte	Brunswick	1212 Shallotte
Goodwin, Walton E.	Box 109, Red Springs	Robeson	None
Goodwin, James H.	Box 205, Clinton	Sampson	4724
James, Joe F.	Box 355, Bladenboro	Bladen	None
Musselwhite, J. L.	5007 Barefoot Drive, Wilmington	New Hanover	ROger 3-5695
Sellers, Robert K.	Box 1001, Lumberton	Robeson	4319
Sigmon, Troy M.	Box 125, Chadbourn	Columbus	4671
Tripp, C. H.	Newton Grove	Harnett	None

DISTRICT NO. 5

Rollins, Tom L., SUPV.	Box 907, Sanford	Lee	SP-3-4452
Jones, A. E.	Siler City	Chatham	SHerwood 2-3358
Lineberry, L. L.	Rt. 2, Box 228, Greensboro	Guilford	MIdway 3-3701
Allen, Raymond Y.	Leasburg	Caswell	7363
Daniels, Thomas M.		Guilford	None
Davis, John K.	1124 Durham Rd., Roxboro	Person	8-1841
Godwin, A. C.	Rt. 4, Sanford	Lee	SPring 4-3415
Lamphere, Paul D.	Rt. 2, Box 146A, Trinity	Randolph	2-7460 High Pt.
Logan, Robert F.	Box 1084, Chapel Hill	Orange	9-8534
Neal, A. D.	Rt. 1, Stokesdale	Rockingham	5056-Madison
Perry, Vance M.	Box 344, Graham	Alamance	6-2749
Savage, J. D.	108 Rectory St., Oxford	Granville	3848
Ward, Marvin L.	Rt. 1, Morrisville	Durham	6-5732 - Durham
Williams, Thomas L.	Rt. 3, Box 159C, Pittsboro	Chatham	None

DISTRICT NO. 6

Wade, R. Frank, SUPV.	Box 802, Albemarle	Stanly	YUkon 2-4053
Overcash, Ray A.	Box 326, Southern Pines	Moore	WIndsor 4-2541
Wheless, Jimmie J.	112 Oak Ave., Lexington	Davidson	CHestnut 3-2433
Armfield, S. M.	Rt. 1, Marshville	Union	24-R
Brown, John O.	3200 Amity Road, Charlotte	Mecklenburg	EDison 3-9146
Greene, James B.	Box 186, Robbins	Moore	None
Griffin, Ralph R.	318 N. Washington Ave., Wadesboro	Anson	MYrtle 4-3076
Martin, Jimmie R.	507 Dawn Street, Kannapolis	Cabarrus	WE 2-8045

DISTRICT NO. 6 (Continued)

Milstead, Robert E., Jr.	Box 175, China Grove	Rowan	ULrick 7-7747
Poole, Cleat E.	Box 568, Troy	Montgomery	5911
Sides, Harold E.	Rt. 1, Box 66, New London	Stanly	YU2-1361
Slaughter, Mather	Box 895, Rockingham	Richmond	None
Wright, Robert W.	1706 Sherwood Road, Lexington	Davidson	CHestnut 6-4658

DISTRICT NO. 7

Edmisten, Walter F., SUPV.	Boone	Watauga	AMherst 4-8644
Beamer, George B.	Rt. 3, Mount Airy	Surry	1751-J
Woodruff, T. B.	Rt. 2, Mocksville	Davie	1610-J
Ball, Vernon, F.	Rt. 2, Box 280, Elkin	Surry	1645-M
Barr, George A.	King	Stokes	YU3-8475
Barts, L. N. (Trainee)	Box 184, Taylorsville	Alexander	None
Ellis, Dewey M.	Box 163, Sparta	Alleghany	None
Forbes, Miles E.	1404 Reid St., Statesville	Iredell	3750
Jones, W. W.	2830 Patterson Ave., Winston-Salem	Forsyth	3-2091
Koontz, Roland H.	Jefferson	Ashe	4386
Link, Vance M.	General Delivery, Wilkesboro	Wilkes	1195MX
Mackie, Frank W.	Box 176, Yadkinville	Yadkin	3161
Osborne, Tommie F.	Boone	Watauga	AMherst 4-3809
Phipps, Walter Clifton	Box 81, Mocksville	Davie	1623-M
Reese, Frank B.	Rt. 2, Taylorville	Alexander	2351

DISTRICT NO. 8

Curtis, Donald E., SUPV.	P. O. Box 814, Morganton	Burke	HEmlock 7-1759
Eaker, J. L.	101 N. Madison Street, Marion	McDowell	3953
Fairchild, John T.	Box 43, Conover	Catawba	INgersoll 4-1880
Allran, Cecil E.	610 N. Grove St., Lincolnton	Lincoln	REgent 5-8503
Beatty, James N.	241 S. Main St., Marion	McDowell	6953
Burgess, Russell	Rt. 1, Spruce Pine	Mitchell	POplar 5-4335
Carpenter, Wallace M.	Three Mile	Avery	POplar 5-2568
Crawley, William L.	Sixth St., N. W. Conover	Catawba	INgersoll 4-4516
Higgins, Milton B.	Burnsville	Yancey	MUtual 2-2549
Lindsay, Cecil	Box 545, Lenoir	Caldwell	PLaza 4-6967
McLean, J. D.	407 Oakdale Ave., Gastonia	Gaston	UN 5-8132
Peeler, William B.	Rt. 1, Mooresboro	Rutherford	Ellenboro GL3-7351
Price, Jesse O.	Box 1195, Shelby	Cleveland	HUxley 7-7796
Rhyne, Robin H.	Rt. 5, Box 11, Morganton	Burke	HE 7-4734

DISTRICT NO. 9

Robertson, Hugh A., SUPV.	Route 3, Waynesville	Haywood	GLendale 6-9292
Martin, Harrison J.	Rt. 2, Hayesville	Clay	289J4
Ray, Avon O.	Box 2365, Asheville	Buncombe	ALpine 2-4710
Beard, Roy Wayne	Box 2554, Asheville	Buncombe	ALpine 2-5362
Boring, Charles H.	P. O. Box 618, Franklin	Macon	383J
Crain, Wade	Rt. 1, Bryson City	Swain	4586
Dalrymple, Arnold R.	Murphy	Cherokee	241-J
Danner, W. W.	Box 1005, Sylva	Jackson	JUstice 6-2870
Davis, Thomas E. (Trainee)	Gen. Del., Robbinsville	Graham	GRantie 9-3551
Gant, James W.	Rt. 2, Waynesville	Haywood	GL 6-5741
Jackson, Clyde L.	Gen. Del., Hendersonville	Henderson	9920
Norton, Harold	Box 86, Hayesville	Clay	None
Pack, Arthur	Rt. 1, Tryon	Polk	495 (Police Dept.) (Service Motor Sales, Marshall,
Ramsey, Raymond C.	Route 2, Marshall	Madison	Tel. 2401)
Renegar, James D.	Box 242, Brevard	Transylvania	TUrner 2-2672

Dear Joe

Joe is not one individual. He is a sort of composite of all the sportsmen of North Carolina. Joe goes hunting and fishing as much as time will permit, and questions frequently arise in his mind about the wildlife on his favorite stamping grounds. Sometimes he cannot answer these questions himself; so he writes the Wildlife Resources Commission. These letters are our answers to Joe.

JOE DOAKS

Dear Sirs:

What's the reason for starting some of the managed hunts at noon?

Sincerely,

Joe

Dear Joe:

We understand that you may not be the only one concerned with this question so we are mighty glad you contacted us about it. To set up the noon opening was no snap decision. The question was debated at considerable length with pros and cons batted back and forth all the way from the refuges to the Commission halls and back to the public hearings. Only after full and mature consideration of the benefits to be derived was the final decision made to give it a try.

It might be well to first restate the reason for wildlife management areas. Their purpose is to provide good hunting and a proper harvest of game with sufficient control to maintain safe hunting conditions.

The constantly increasing demand for deer hunting has caused heavy pressure in some of the old traditional big game hunting spots. To alleviate this pressure, the number of wildlife management areas has been increased (there are still more to be opened in the future). Also, the system of trails and access roads has been greatly expanded to allow better hunter distribution. New and better highways too, have cut distance down and helped make formerly remote management areas easier to get to.

In further efforts to meet this demand for more hunting, we are continually improving big game production techniques by habitat development and better protection through more effective law enforcement. Techniques for herd population estimation are being worked out to further assist in this management program.

Despite these efforts however, certain areas, mainly because of nearness to large population centers, are overcrowded the first few days of the open season. In contrast, some of the newer areas, which provide hunting of equal quality, have relatively few hunters. Applications in advance, quotas, and drawings have been used to equitably distribute hunting opportunity on high pressure areas; but it is expensive and ties up key personnel at a time when they are needed on other phases of managed hunt administration.

This system was necessary in the old days when we did not have enough hunting areas to meet the demand. We feel that with the many new areas which have opened the situation is considerably improved and we no longer need to carry the expensive overhead of the old system. The money spent for the extra clerical help could provide additional patrolmen or buy many extra acres of pasture to raise more deer.

COMPARISON OF HUNTING SUCCESS BETWEEN FULL-DAY AND HALF-DAY OPENINGS

Management Area	First Day			Second Day			Third Day			Entire Buck Hunt Average		
	Hunters	Kill	Man-days per kill	Hunters	Kill	Man-days per kill	Hunters	Kill	Man-days per kill	Hunters	Kill	Man-days per kill
Uwharrie	238	11	21	138	8	17	90	3	30	2037	87	23
Pisgah	140	10	14	111	3	37	915	80	11	6247	339	18
Mt. Mitchell (Camp Alice, South Toe)	113	5	23	210	27	8	234	16	15	1692	101	17
Daniel Boone (Fox Camp, Chestnut Mt., Rose Mt.)	110	5	22	185	20	9	194	22	9	2085	147	14

The colored area indicates hunts conducted on a whole-day basis.

Shortening of the hunting period on opening days on these high-pressure areas is a much less expensive way of controlling hunting pressure than advance application. While many people are agreeable about starting their hunt at 12:00 noon, others are not. As a result, the pressure is cut down and this reduced participation has the same general effect as "application in advance" but *without* the administrative costs of processing thousands of applications, holding public drawings, and answering the hundreds of extra letters.

On the 1958 hunts *both* application in advance and the noon opening were used. The quotas and advance applications were merely a safeguard in case our planning was faulty. Hunt result figures show that the noon opening accomplished its intended purpose and unless we can find valid reasons to the contrary, future hunt plans call for permits to be sold at the checking stations without quotas and with only delayed starting time for control of excessive pressure.

From the results of the 1958 hunt, it is apparent that reduced time on opening days has little effect on the kill success. On the first day of the four areas using the noon opening, the man-days needed per kill were in two cases less and in two cases more than the average throughout the hunt. Even on the poorest day when man-days per kill was 37, hunting success equaled some of the full-day hunts later in the season. Total antlered buck kill for the two years was practically the same. Overall hunter success too, was almost identical.

Each year for the past several years there has been a substantial increase in the amount of hunting on the management areas. This year, however, this increase has been restricted to the newer "low-pressure" areas as a result of noon-opening on the older "high-pressure" areas. In the following tabulation we have listed the man-days of participation in the buck hunts on the low-pressure areas. Note that in nearly every case there was more hunting than last year..

While we accomplished an over-all increase of 14 percent hunting pressure on low-pressure areas, the noon opening resulted in a three percent decrease on the high pressure areas. You will note that pressure on these areas was held at about last year's level:

Area	Number of Deer Hunters on Buck Hunts 1957	1958
Santeetlah	687	641
Fires Creek	608	799
Standing Indian	867	1079
Wayah Bald	367	375
Sherwood	1410	1622
Rich Laurel	502	511
Flat Top	508	633
Thurmond Chatham	322	446
South Mountains	——	162
Sandhills	1155	973
Holly Shelter	407	548
Total	6833	7789

Area	Number of Deer Hunters on Buck Hunts on Areas with Half-day Openings 1957	1958
Pisah	6229	5891
Mt. Mitchell	1491	1608
Daniel Boone	1779	1666
Uwharrie	2050	2034
Total	11,549	11,199

Some people predicted that there would be a drastic drop in kill as a result of noon openings. Actually, antlered buck kills were sustained at about the same levels on two areas; there was a slight drop on one, which was more than balanced by an increase on the fourth:

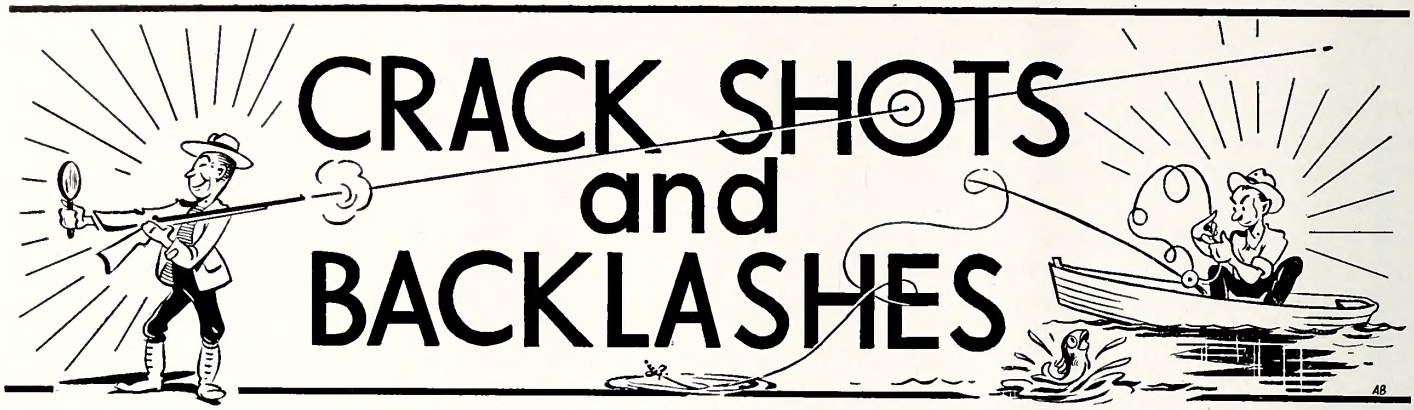
Area	Number of Deer Taken on Areas with Half-day Openings 1957	1958
Pisgah	362	339
Mt. Mitchell	101	101
Daniel Boone	96	147
Uwharrie	83	87
Total	642	674

We believe you will agree, Joe, that the figures demonstrate that the noon openings accomplished exactly what they were designed to do. On the other hand, we must admit one failure. One station, North Mills River on the Pisgah Game Preserve, had a much larger than usual crowd on the third day (the first full day). In effect, the new system postponed opening day. We feel though, that by opening the first two half-day hunts without quotas *or* application in advance, enough people will hunt to prevent this third day build-up. Another objection some find is not being on their stand at the areas where they can do this. Only 4 out of the 15 areas had the noon opening.

Most hunters have accepted the half-day antlerless deer hunts and in light of the kill results of 1958 we feel that they will see the advantages and accept the half-day opening on back hunts. We hope to have a more complete report on results of the managed hunts in next month's issue, Joe, and we feel that after you have had a chance to study all the figures you will agree that the new way will give you and your buddies more and better hunting.

Sincerely,

Frank B. Barick, Chief, Game Division, and Malcolm G. Edwards, Supervisor, Western Management Areas.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Judging from reports of hunting accidents appearing in Tarheel newspapers during the current hunting season, it appears that hunting accidents have increased at a rate out of proportion to the number of hunting licenses sold.

Over the years the Wildlife Resources Commission and other agencies have carried on intensive hunting safety poster campaigns, and have done some work with hunting safety demonstrations. It is becoming apparent, however, that education alone is not the answer to the problem. As far as we have been able to learn, there is no law in the North Carolina code making the careless handling of firearms a misdemeanor. Careless and reckless use of an automobile is classed as a misdemeanor, and persons driving carelessly and recklessly are subject to arrest, prosecution and appropriate penalty. There is no such thing as a hunting accident. In all cases of fatality or injury by the use of firearms carelessness or negligence is the underlying cause. If you run over someone on the highway you are automatically subject to charges of manslaughter or careless and reckless driving. In almost all hunting accidents, however, the ruling is "accidental."

Cooperating with thirty-four states and two Canadian provinces the National Rifle Association analyzed over 1,500 fatal and nonfatal hunting accidents and their causes. Every case was the result of carelessness on the part of the shooter or the victim. None was excusable!

Forty-seven percent of the accidents resulted from the intentional discharge of guns; 53 percent were the result of unintentional discharge. In the intentional discharge bracket 10 percent of the hunters mistook the victim for game. Fourteen percent of the victims were hit while the shooter was swinging his gun on game, and nine percent of the victims moved into the line of fire.

Unintentional gun discharges varied from stumbling, trigger catching on brush, clubbing game or brush with gun, to just plain horseplay or stupidity.

* * * * *

A rabbit hunter went through a wire fence with his gun loaded and cocked. He is survived by his widow, two children and the rabbit.

* * * * *

When Baltimore minnows (culled goldfish) first came into popular use there was a great deal of anticipation that these fish, released in a lake or a pond, would revert to carp-like behavior and destroy the habitat for game fish. Baltimores are tough and can take a lot of punishment on the hook or in the minnow bucket. Further, they are excellent bait for game fish.

The following information and substantiating statements come from a commercial live-bait-producing company at Kernersville:

DEAR SIRS: How about helping to clear up this misconception about the Baltimore minnow? All the time I hear about the Baltimore minnow being a carp. Only a misinformed person would knock the Baltimore minnow. As your WILDLIFE Magazine is the "fisherman's bible" and is widely read by most sportsmen, perhaps you would print some information to clear up this situation. Contrary to belief, the Baltimore is the only safe minnow to be used in a gamefish lake. He has been hand-raised and hand-fed under non-competitive conditions and is out of his environment when used for bait. He will never, I repeat, never reproduce in numbers in any gamefish pond or lakes. The bream love to eat his eggs and what few escape the bream are greedily eaten by bass and other gamefish as they all love such a tasty morsel. The Baltimore just doesn't stand a chance.

I would like for you to print some excerpts that are found on page 22 of Circular #112, from the Agricultural Experiment Station of the Alabama Polytechnic Institute, Auburn, Ala. The title of the circular is "Production of Bait Minnows in the Southeast." (This article pertains to goldfish and as the Baltimore is an uncolored goldfish that is culled and put on the market for live bait, he is then called the Baltimore minnow).

"Since goldfish and carp belong to the same family (cyprinidae) many people have the mistaken idea that the two fish have similar habits and that the goldfish will, therefore, root around on the pond bottom and cause the pond to be muddy. Even in very crowded rearing ponds, however, goldfish do not roil the water.

"Although there are numerous published statements to the contrary, experiments at Auburn, Alabama, over a period of 12 years have shown that goldfish are not harmful to ponds and lakes stocked with largemouth bass and bluegills.

"Observations on several hundred ponds and lakes in the Southeast in which goldfish have been used for bait by fishermen have shown that the species was not detrimental since the numerous bluegills prevented the goldfish from reproducing successfully by eating their eggs. The few goldfish that evaded the largemouth bass often grew to a size of 3 to 5 pounds each, but in no pond had the goldfish become numerous or harmful."

The above quotes are in agreement with the findings of the Berry Water Gardens,

Kernersville, N. C., one of the South's largest distributors of goldfish and live bait for the past 20 years.

They also have some affidavits from owners of private ponds and lakes who have found the above quotes are more than true.

If a person would just look up some facts instead of repeating someone else's phases, this nonsense about the Baltimore minnow being carp would never have gotten started. Fishing is quite popular in our state so let's keep it that way.

There have been millions of Baltimores fished with in the private and public lakes and streams of North Carolina and as yet, I still have had someone to tell me they have found or seen Baltimore reproducing in numbers in these lakes. (Upon seining, trapping, poisoning, etc., of these lakes last year, plenty of shiners, shad, and other rough minnows were found but NO BALTIMORES! This fact alone should be sufficient.)

"An over-imbalance of small rough fish in a lake causes the small fry of game fish to disappear. Therefore it behooves a fisherman to carefully choose a minnow that isn't prolific enough to cause such an imbalance. Not only does the Baltimore minnow answer this purpose, his best trait is that he catches fish. G. W. LEFEVER, KERNERSVILLE.

Mr. Lefever enclosed the following affidavits to support his conclusions:

I the undersigned, purchased a lake about 5 years ago. It contains about two acres. Being as the fishing in it was very poor, I decided to drain it. Upon draining, I found plenty of shiners, some catfish, a few bream, and a few carp. Most of the large fish seemed to be stunted. I restocked the lake with bream and bass about four years ago and started fishing in it a year ago. As I am a Baltimore fan, only Baltimores are used as live bait in the lake. My friends and I fish this lake often and catch all sizes of bream and bass. As yet, I have not seen a single Baltimore of any size that has propagated from the bait we have used. I have been an ardent fisherman for many years and have found the Baltimore minnow to be the safest minnow to be used in game fish lakes. LESIS M. BARRIER, KERNERSVILLE.

I the undersigned, have a lake near Reidsville, N. C., and it is an acre and-a-half-pond. I intend to poison it because it is full of shiners and the fishing is now "no good." B. K. SMALL, REIDSVILLE.

I the undersigned, have a 1.75-acre lake that I have let the public fish in. I stocked the lake about eight years ago and drained it three years ago under the advice of the Wildlife Commission. After draining, I found numerous shiners, a few bream, a few crappie and very few bass. I have now restocked my lake and am going to do my best to keep shiners out of it. Fishing with Baltimores will be permitted as I found none of these in my lake when I drained it. J. B. EDWARDS, HIGH POINT

I, the undersigned, have a lake 1.3 acres. I stocked it eight years ago and drained it four years ago, as fishing had become "no good." I found I had too many shiners and very few fish. I restocked it and now I find I have to drain it again for the same reason. As my lake is open for fishing to the public, I can hardly control the kind of bait used, but I wish the State would do something about these propagating shiners. LOCK B. DEATON, HIGH POINT

Alabama Bobcat Food Habits Studied

The bobcat is neither a "saint nor a sinner" according to a study conducted in Alabama, the Wildlife Management Institute reports. The stomach contents of 145 bobcats collected between 1947 and 1954 were examined by biologists of the Alabama Department of Conservation and the Alabama Cooperative Wildlife Research Unit to provide a clue to the cats' eating habits.

The findings were that "rabbits provided 65.1 per cent of the volume of food for bobcats during the year. The rabbit was the bulk of the food for the cat in every month of the year.

"Deer provided 14.5 per cent of the food. Deer are eaten mostly in January and February. No deer meat was found in bobcats' stomachs from May through August. Most of the deer eaten by the bobcat may consist of dead or wounded animals, since this food item was usually consumed during and following the hunting season.

"Contrary to expectations, wild turkey was found in only one stomach. Quail were found in two stomachs and made up less than 2 per cent of the diet. Domestic chickens were found in three stomachs, for a total percentage of 3.5. Remains of one mallard duck, several song birds, and one hawk were found. Squirrels made up 4.3 per cent of the bobcats' food and were eaten most frequently in December, January, and February. Rodents, including rats and mice, made up 5 per cent of the diet.

Wildlife Biologist Ralph Bitely (right) tells Marvin Lutz of Cleveland County about the importance of planning for wildlife. A farm cover map is used to plot the location for food and cover plantings. District biologists are constantly helping landowners produce more game and will be glad to help you. The Commission supplies plants and seeds free.

These were eaten in the greatest numbers from June through August. Raccoons and possums constituted 4.3 per cent of the diet."

"These eating habits," authors James R. Davis and Arnold O. Haugen concluded, "put the bobcat in both good and bad brackets. Certainly, he is not as 'black' as often painted."

Restocking Coons

DEAR SIRS: Enclosed please find picture taken during our recent Christmas Parade here in Monroe. Out of approximately 100 entries our float took second place. The first place position going to one of our civic organizations. Since our club is fairly new in the county we were proud of our first attempt to build up public interest.

Our first objective is to carry out a restocking program which we have started in the county. The first order of 158 raccoons through the N. C. Wildlife Resources Commission should get us off to a good start. To hunt most of the night in this county without even a strike is not uncommon. We also realize that the phase HELP PROTECT OUR WILDLIFE is not just loose words aimed at the other fellow. Too often we rod-and-gun-toters take for granted our crop of game in North Carolina, not thinking that the next generation might for some unknown reason become interested in the same outdoor sports that we are. Lets save a few for

them. Pictured left to right in the snapshot, Bill Austin, President; Brack Helms, Vice President; Joe Baucom; Buss Slagle, Secretary and Treasurer, and Frank Fowler. Thanking you for a fine wildlife magazine. BILL AUSTIN, PRESIDENT, UNION COUNTY COONHUNTERS ASSOCIATION, MONROE.

Praises Magazine

DEAR SIRS: Your fine magazine rates a heap of praise in my opinion for publishing the article "How our Game Laws Waste Deer." I firmly believe that this is a terrific step toward educating the public to a pressing problem. Our deer population is a valuable resource in this great state and only through legislation and enlightenment of the public will it be conserved. Every individual interested in wildlife and its conservation should read this article. It has a lot of food for thought. You and your staff are doing a fine job in putting out WILDLIFE IN NORTH CAROLINA. Keep up the good work. BILL KERR, SECRETARY, DURHAM COUNTY WILDLIFE CLUB

Expresses Appreciation

DEAR MR. HAMNETT: This is to express my sincere appreciation to you and the N. C. Wildlife Commission for sponsoring my trip to the National 4-H Club Congress. This trip will certainly always remain in my memory as one of the most educational, inspirational, and enjoyable events of my life.

I was impressed by all of it, but was especially impressed by the sincere desire of all present as delegates to "make the best better." When we saw the flag flying in the spotlight and sang the National Anthem, it made me feel a part of a movement larger than one person or all of us, but the future of a nation.

It was new and exciting to stay in the world's largest hotel, to see famous people speak and perform, and to eat new and strange foods. I also enjoyed the trip to the museum and wanted to stay much longer there.

Thanks again for your part in making all of this possible. It was wonderful! So come to Johnston County soon and visit us, I'd like to tell you all about it. PHIL SHAW, FOUR OAKS

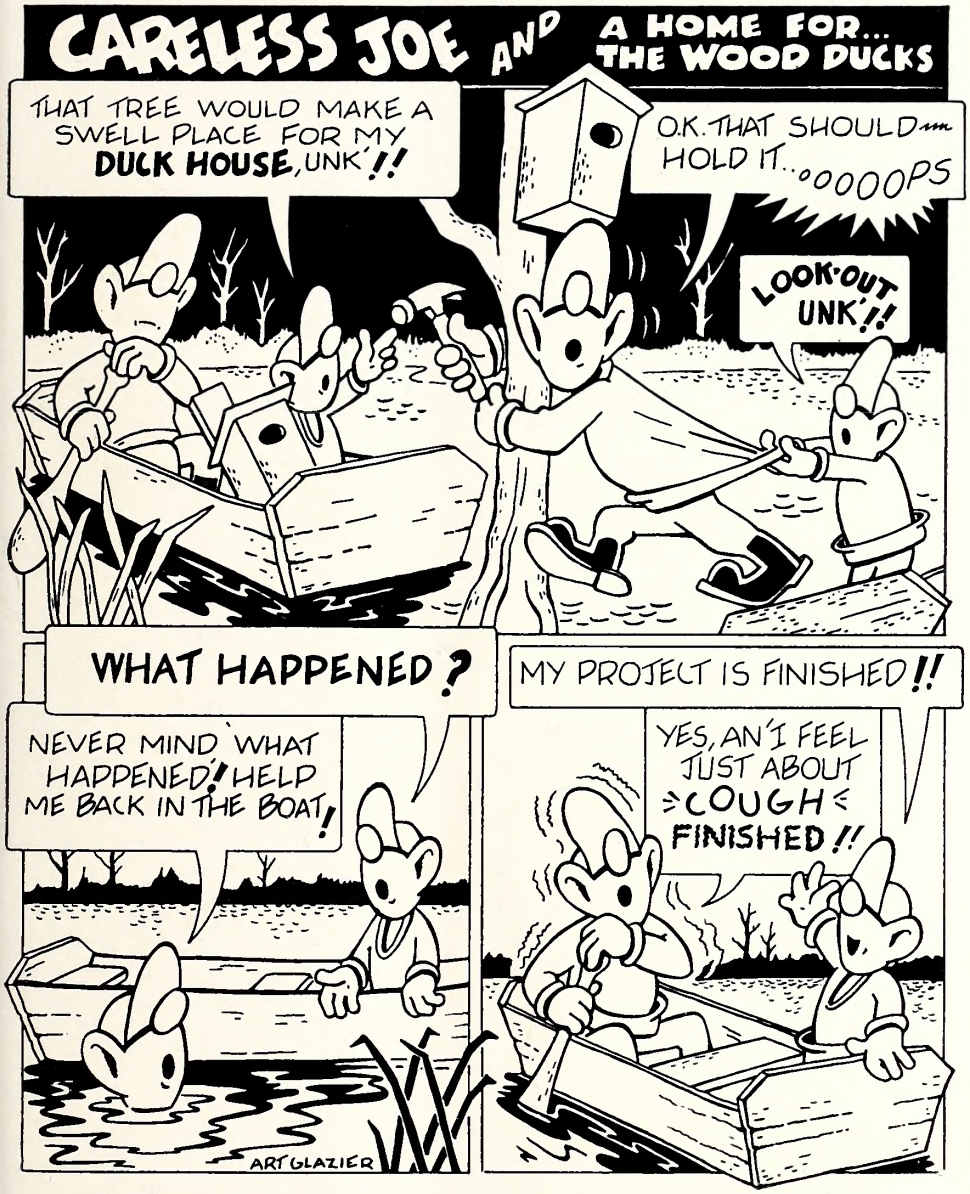
P.S. We enjoyed meeting and talking with you in Raleigh and would like to add our words of thanks to Phil's for the wonderful opportunity and experience you made possible for him. It was one of the finest things which could have happened to him and we are very grateful. MR. and MRS. D. C. SHAW

Fox hounds lead better than a dog's life during the annual Valentine Fox Hunt, held each mid-February at Nags Head. Registered for February 12, 13, and 14 are more than 100 dogs, who will be guests of the Carolinian Hotel during the event.

Congratulations

Boy Scout Week, February 7-13 is being celebrated across our Nation. We in North Carolina should be especially proud of the scouts and their leaders because of the many worthwhile projects and contributions to community welfare. It has become apparent over the past several years that a greater interest in the wise use of our natural resources and the out-of-doors is developing into a strong attitude pin-pointing conservation as an urgent problem in North Carolina today. These are the boys who tomorrow will hunt our forests and fields, fish our lakes and streams, and trap our marshes and swamps.

The Wildlife Resources Commission wishes to extend congratulations for the continued success of these new sportsmen, and pledge our support in this continuing program of making it possible for a boy to become a better citizen of tomorrow.



No segment of the program has won so much public approval as the grants for sewage plant construction. The public recognizes sewage plant construction as a producer of tangible results. It is tired of foul streams and lakes, of waters unfit for human consumption, recreation, and other beneficial uses.

During the past two years $95 million has been provided for the grants construction program. The present ceiling limit of total appropriations is $500 million, and individual community grants are limited to $250,000 or 30 percent of estimated project costs, whichever is smaller. At the end of last June, 1,038 projects were approved for assistance, 507 under construction, and 149 finished. Local funds invested in sewage treatment plant construction exceed Federal grants by better than a 4 to 1 ratio.

The first 947 projects approved for assistance will provide municipal waste treatment for nearly 15 million persons; reduce municipal pollution in about 11,400 miles of streams to accepted state levels; and improve miles of sea and lake beach. Nearly 80 percent of the grants are being used for new treatment plants; the rest for enlarging facilities.

The grants program was designed to stimulate sewage plant construction. It is. The 1957 level of construction exceeded by $101 million the outlay during the previous non-grants year. The report is available from the U. S. Public Health Service, Washington 25, D. C. Ask for Publication No. 631.

Progress of Federal Water Pollution Control Program Summarized

A new attack on an old problem sometimes brings startling results. This is shown dramatically in a recently released two-year summary of the Federal Water Pollution Control program, according to the Wildlife Management Institute. The achievements are impressive both from accomplishments of the Federal program and from state interest and action that has been stimulated.

Responsibility for carrying out the 1956 Act rests with the U. S. Public Health Service. Major aspects of the program include compilation of basic information, providing states with technical assistance and personnel training, supervision of grants for sewage treatment plant construction, research, program grants to the states, and interstate pollution enforcement.

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AL BARRETT

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in north carolina

Suddenly It's Spring

The gnarled branches bristling in the wild plum thicket have been swelling far weeks. Suddenly one marning you see that the buds have burst inta millions af tiny white flowers— and suddenly it's spring. But thraugh the year the wild plum has an unnaticed beauty as it fills the add corners and hedgeraws. For here is cover far wildlife— a place far nesting and a place far hiding, sa vital if birds and animals are ta repraduce and graw in aur state.

Photo by Jim Lee

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

An early and conspicuous sign of spring is the bloodroot, a wild flower which often thrusts its cheerful white and yellow face above the dead leaves of winter before the last frost — a promise of a new season, warming waters and fighting fish, and glorious days in the out-of-doors. Enlarged on our cover to show their delicate beauty, blossoms are actually about 1½ inches across.

During warm spells in early March, fishermen are likely to discover hundreds of the snowy flowers on wooded south slopes near rivers where the earth has received a big portion of life-stimulating warmth. And the fisherman that pauses for a moment to reflect upon the beauty before him and to call the bloodroot by name will surely find his day more enjoyable. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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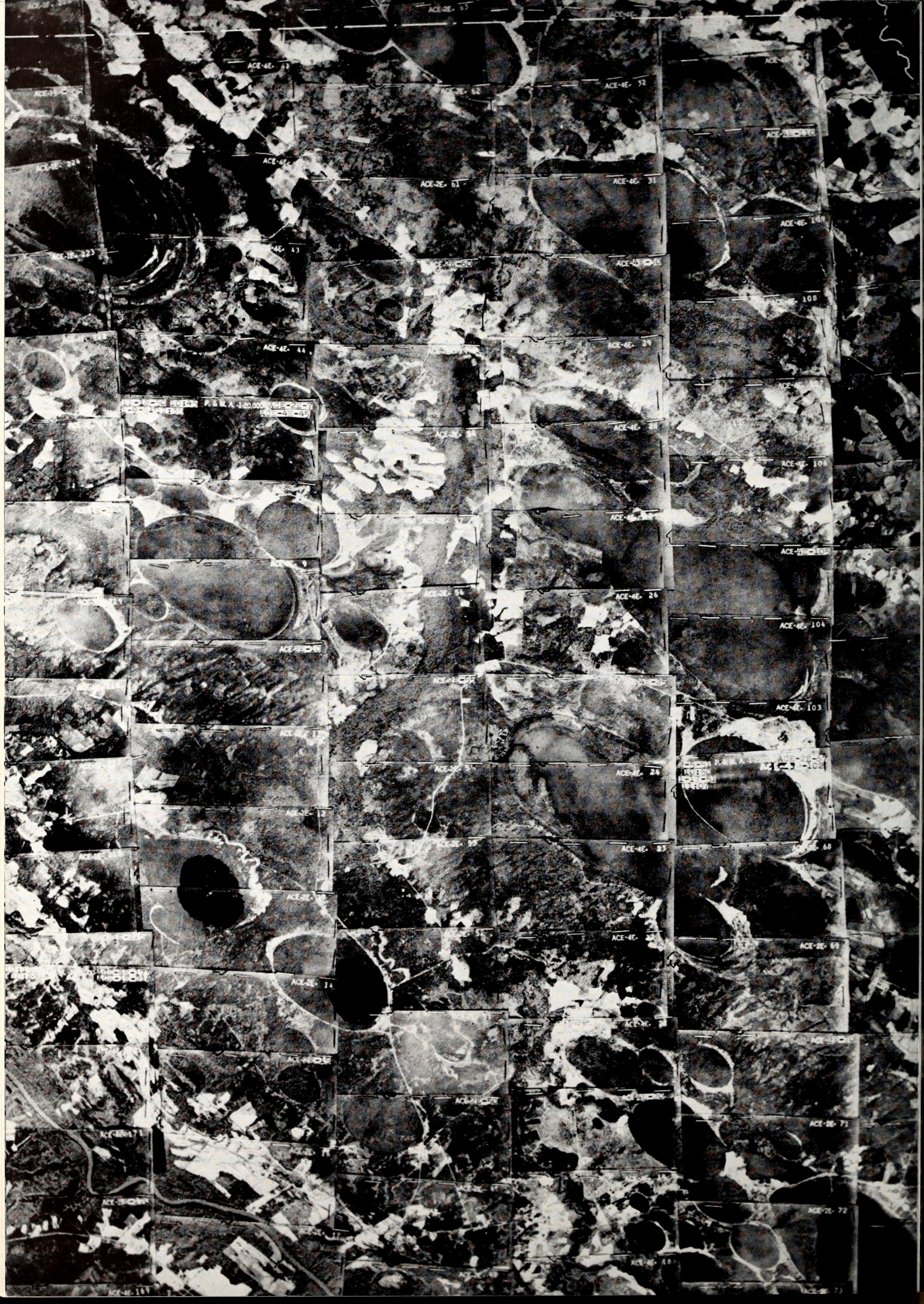


The BAY LAKES

By Darrell E. Louder
Fisheries Investigator

The origin of North Carolina's Bay Lakes remains a puzzle to geologists—but recent investigations by Wildlife Resources Commission fishery biologists have shed new light on sport-fishing potentials in these five natural lakes.

THE Bay Lakes, as they are popularly known, consist of five natural lakes: Salters, Jones, Singletary, White and Black. In size they range from 224 acres to 1,418 acres and are located in the heart of Bladen County. They drain indirectly into the Cape Fear River. Relatively shallow, the deepest reading is 11.8 feet in Singletary Lake.

The Bay Lakes have surface drainage, with the outlets being shallow and intermittent during dry years. Streams coming into the lakes flow through extensive swamps with little gradient, resulting in very dark water in all the lakes except White Lake, which is virtually colorless.

History

Early settlers who traveled the area on the ground accepted the lakes as natural and had little cause to speculate about their origin. But when the county was mapped, and later when airplanes carried observers over the lakes, the striking resemblance between the five bodies of water became apparent. From that time on people have tried to determine how the lakes were formed. Several theories have been suggested, and the two most popular should be mentioned.

According to one theory, between 40,000 and 100,000 years ago, as determined by radiocarbon dates, the skies were lit up over southeastern North Carolina by a blinding light. A brillant mass shot earthward out of the northwest, setting up a tremendous roar and terrifying shock waves which could be felt for miles. Thousands of flaming bodies from outer space bombarded the area with the fury of an atomic explosion. Great columns of dust and debris shot into the air, leaving craters ranging from several hundred feet to several miles across. The forest was leveled by the blast; almost instantly the roar ceased and the crackling of vast forest fires could be heard. The result of this supposed meteor shower produced elliptical rays from northern Georgia to southern Virginia. Bladen County was the hardest hit, leaving many bay lakes like the five mentioned in this article.

An opposing theory is that the basins were first excavated by water from artesian springs, and then wind and wave action enlarged them to a size greater than their present acreage. The similar shape is explained by the direction of prevailing winds.

Physical Features of the Lakes

The Bay Lakes have been filling in at a slow rate and this reduction in area has been hastened by the encroachment of vegetation along the shores. At some places in the lakes, especially in Salters and Singletary, bald cypress trees can be found in water four feet deep. These cypress help form a wall which halts excessive wind and wave action, allowing other plants to become established. Over the thousands of years this procedure has formed peat beds, resulting in a decrease in surface acreage. Jones Lake has filled in 66 percent of its original size and White Lake 29 percent. The three remaining lakes are intermediate in the degree of filling.

The four main types of bottom deposits in the lakes are sand, pulpy peat, fibrous peat and blue-gray clay.

The lakes are oval in shape and have a regular shoreline. The lakes vary in size and depth as shown in Table I. The water is primarily a dark tea color, with the exception of clear White Lake. This can be explained by the difference in drainage pattern between White Lake and the other four. In White Lake the water drains from the clean sand bottom of the lake into a swamp, while in the other lakes

TABLE I. Statistics of the Bay Lakes, Bladen County, N. C.

LAKE	Area In Acres	Miles Of Shore	Length In Miles	Maximum Depth	Average Depth	No. Of Species
Salters	315	2.70	0.9	10.1	6.9	14
Jones	224	2.19	0.8	8.7	6.1	13
Singletary	572	3.92	1.5	11.8	7.0	13
White	1,068	4.77	1.8	10.6	7.5	18
Black	1,418	5.91	2.1	7.1	5.3	10

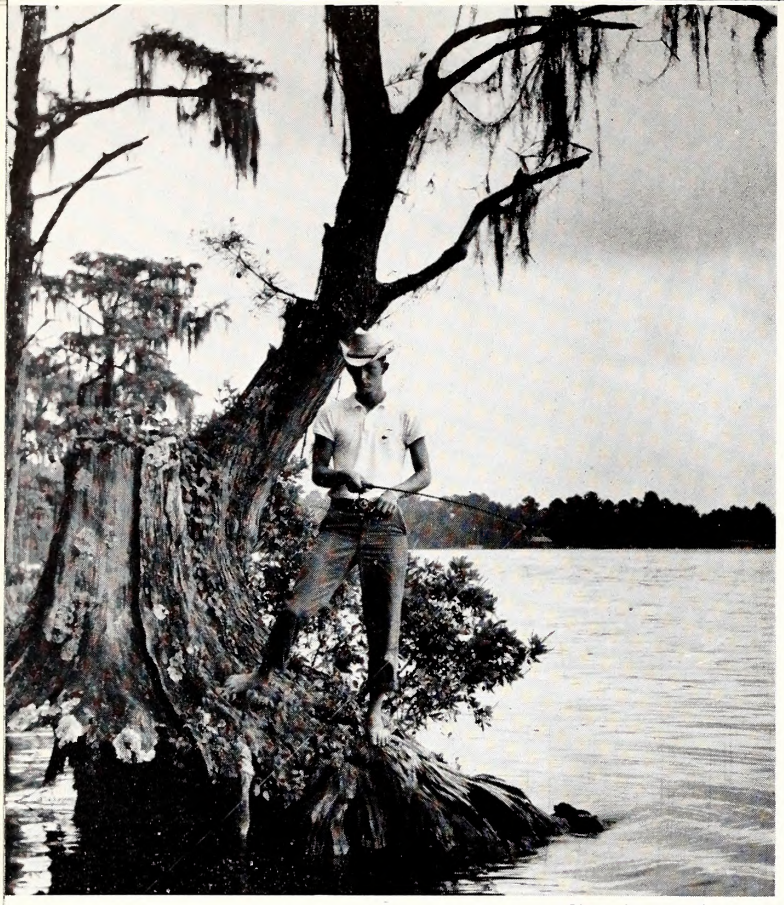


Photo by Derrell Louder

Fair largemouth bass and bluegill fishing can be found on the northwest side of White Lake, where adequate hiding places and spawning territory produce catchable numbers of the game fish.

water drains from the swamps, into the open bodies of water. The dark color comes from the large amounts of humic acid and related compounds decomposed under swampy conditions. Draining this water through the lakes, the lakes serve as catch basin and retain the dark color and high acidity.

Access

White Lake, with its numerous docks, is primarily a tourist and summer resort, and is the most accessable of the Bay Lakes. Jones Lake is a Negro recreation park and Singletary Lake is used mostly for group camping. Salters and Black lakes are in the back woods, with only one trail leading to each.

A valid Department of Conservation and Department boat license is required for these lakes, plus a special C&D fishing permit for Salters, Singletary and Jones lakes.

TABLE II. Fishes Found in the Bay Lakes.

SPECIES	Salters	Jones	Singletary	White	Black
Eastern lake chubsucker	x	x	x	x	x
Yellow bullhead	x	x	x	x	x
Bowfin	-	-	-	x	-
American eel	-	-	-	x	-
Yellow perch	x	x	x	x	x
Warmouth	x	x	x	x	x
Flier	x	x	x	x	x
Largemouth bass	x	x	x	x	-
Robin	-	-	-	x	-
Bluegill	-	-	-	x	-
Blue-spotted sunfish	x	x	x	x	x
Redfin pike	x	x	x	x	x
Chain pickerel	x	x	x	x	-
Madtom	x	x	x	x	x
Darter	x	x	x	x	-
Starhead top minnow	x	x	-	x	-
Eastern gambusia	x	x	x	x	x
Pirate perch	x	-	-	-	x
Iron-colored shiner	-	-	x	-	-
Banded sunfish	-	-	-	x	-

Fish Populations

The fish populations of the Bay Lakes are quite similar, with White Lake having 18 species and Black Lake only ten. Catches of largemouth bass and bluegill are very meager with White Lake being the only significant producer. Chain pickerel and yellow perch are caught in fair numbers in Salters Lake, Jones Lake, and Singletary Lake. As far as poundage is concerned, yellow bullhead and eastern lake chubsuckers dominate. Thus these lakes are far below par for North Carolina fishing.

Yellow Bullhead

Yellow bullheads made up from 35 to 75 percent of all fish taken in experimental netting in these lakes, with the average size about 8.5 inches. Trot lines for yellow bullheads have produced high yields in the Bay Lakes.

Yellow Perch

Catches of yellow perch up to 15 inches in length are common in Jones, Salters and Singletary lakes, but the average is around nine inches. Fifty-two percent of all fish taken in rotenone samples from Singletary Lake in 1957 were yellow perch and they made up 47 percent of the total weight. Rotenone samples in Jones Lake produced 37 percent yellow perch, making up 42.3 percent of the weight of all fish taken in the sample. From the data now on hand, it appears possible that an outstanding yellow perch fishery could be developed in these three lakes.

Chain Pickerel

Chain pickerel, or jack, are found in all but Black Lake. Good catches can be made in the spring and fall on live bait.

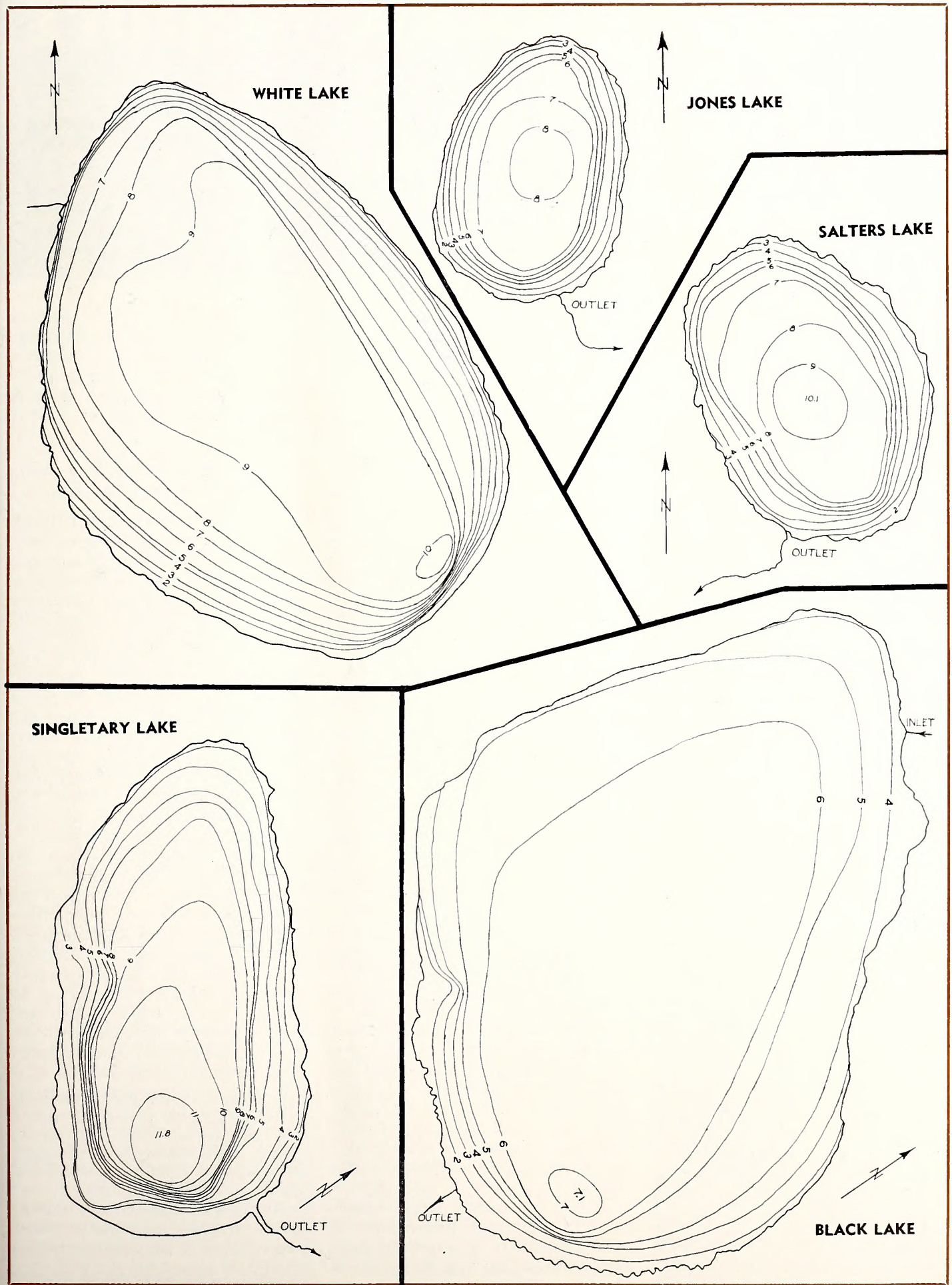
Fliers

Black Lake is the largest producer of fliers, although they are extremely small, with an average length of 4.2 inches for 463 specimens taken during the summer survey of 1958. Small though they are, they're scrappy fighters.

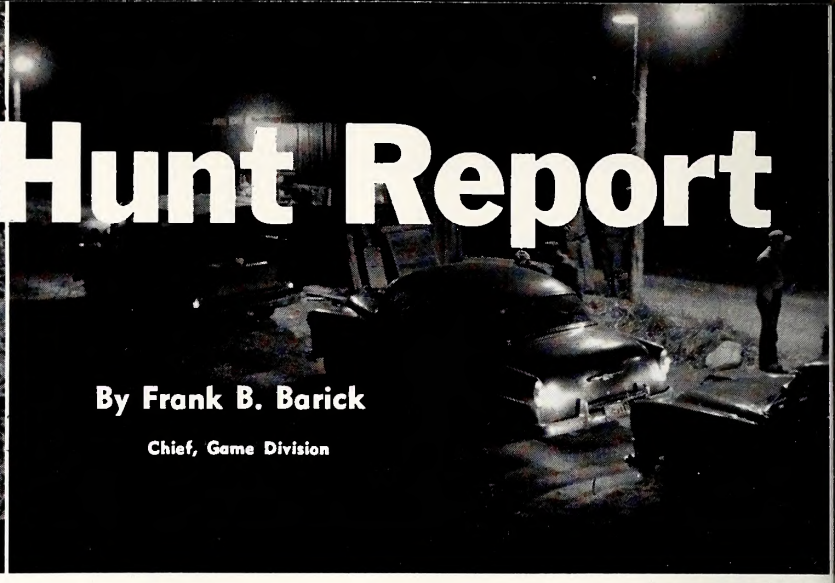
Largemouth Bass and Bluegill

The only worthwhile bass and bluegill fishing area in these five lakes is on the northwest side of White Lake. Here there is adequate spawning territory and also good hiding places for the fish. When fishing for bass and bluegill in this lake, remember that the water is virtually colorless and your fishing line can be seen long distances by the fish; use an extra long leader and be cautious about your approach.

Don't be disappointed if you don't catch large numbers of fish in these lakes; there simply aren't many here due to the overall unfavorable environmental conditions.


WHITE LAKE
N
JONES LAKE
OUTLET
SALTERS LAKE
10.1
OUTLET
SINGLETARY LAKE
11.8
OUTLET
INLET
7.1
OUTLET
BLACK LAKE

Managed Hunt Report



By Frank B. Barick

Chief, Game Division

THE 1958 season produced a new high in big game hunting and harvests on the management areas supervised by the Wildlife Resources Commission. Hunts were held on 15 areas, 11 of which are owned by the United States Forest Service, three by the Commission, and one privately owned.

These areas provided 29,304 man-days of big game hunting and produced 1,568 deer, 43 bears, 18 boars and 34 wild hogs. Participation and kills have been increasing each year for the past several years and this represents a new record both in the number of hunters and in their take.

Bear and Bear-Boar Party Hunts

Forty bear hunt parties killed 22 bears and 13 boars as compared with 47 parties, 23 bears and nine boars last year. The number of hunters was about the same, which means that average party size increased from 16 to 18.5. December bear hunts scheduled after the deer hunts were tried for the first time, and they proved quite successful. Two bears and six boars were taken on seven late hunts held on Sherwood and Santeetlah. These results compare favorably with the over-all kill.

Santeetlah provided nearly half of the hunting and more than two-thirds of the kill. Hunters reported many good races on Sherwood but made only three kills. Considerable sign was seen on Daniel Boone and Pisgah but hunters did not have much luck locating the bears.

While 59 hunts were scheduled in the hunt plan, only 40 were taken. It is expected that the Harmon Den area in northern Haywood County will provide good bear hunting when it is opened. When this is done, it might be well to consider resting some of the less productive areas so as to encourage a build-up in population.

Firearm Still Hunts for Buck Deer, Bear, Boar and Wild Hog

The 1958 big game still hunts produced more deer, bear, boar and wild hog for approximately the same number of hunters as participated last year. Last year 21,286 man-days of firearm still-hunting yielded 1,103 buck deer, 15 bears, six boars and eight wild hogs. This year 21,062 man-days yielded 1,107 buck deer, 20 bears, five boars, and 30 wild hogs. Kill success averaged slightly better this year, with 18.1 man-days per kill as compared to 18.5 last year.

An important innovation was the opening of a few of the high pressure areas with half-day hunts. While this procedure did not at first meet with wholehearted approval in all quarters, hunt results demonstrated its effectiveness in controlling hunting pressure without adversely affecting the kill and at the same time providing a considerable saving in administrative costs. (See last month's issue of *Wildlife*.) In view of the great interest demonstrated in management area hunts, it is felt that such savings could be better used in providing more game to hunt rather than in deciding who would hunt on Monday and who would hunt on Tuesday.

Hunting success did not vary as much between areas as in other years. Many of the areas averaged around 18 man-days per kill. Out-

standing was the 12 man-days per kill on Fires Creek where intensive logging, development and improved access have combined to produce a record harvest.

Archery Hunts

Tarheel archers appear to be coming into their own. Last year, in 475 man-days of bow hunting, they bagged only five deer for an average of 95 man-days per kill. This year, 2,610 man-days yielded 45 deer and four wild hogs for an average of 53 man-days per kill. The either-sex deer hunting allowed this year for the first time undoubtedly did much to improve this average, but probably more important was the element of more experienced hunters and more skilled bowmen.

Archery hunts were conducted on five management areas across the entire breadth of the state. Kills were good on all but one area, and it might be just as well to confine bow hunting to the four better areas next year.

Dog Hunts for Deer

Last year dog hunts for deer were confined to the Holly Shelter area where 18 deer were killed in 407 man-days for an average of 22.6 man-days per kill. This year 501 Holly Shelter hunters took 23 deer and one 326-pound bear for an average of 21 man-days per kill. The hunting system was changed to place each group of hunters in the charge of an approved party leader. This provided for much greater flexibility in hunting and was considered to be a substantial improvement.

Hunting of deer with dogs was also provided on the Sandhills area this year. Such hunting was confined to the outlying tracts which are not as highly developed as the major blocks. Hunting effort was scattered and the kill was light—only 17 bucks in 852 man-days of hunting. Concentration of the hunting period and allowing dog hunts in the main blocks would considerably increase future harvests.

Firearm Hunts for Antlerless Deer

The amount of antlerless deer hunting was substantially increased this year. Such hunts were confined to areas with capacity and over capacity herds. In each locality there was danger of overbrowsing and in some places the deer had already increased to the point where they were damaging the native vegetation and adjacent farm crops.

Last year "doe" hunts yielded 175 deer in 1,697 man-days of hunting for an average of 9.6 man-days per kill. It may be well to consider extension of these hunts to other areas with capacity herds before they reach the danger point in population. Such action is supported by recent research which has indicated that close cropping keeps a deer herd more productive than under-cropping.

Commission biologists were assigned to check all antlerless deer. They not only took the usual weights and measurements but also removed the ovaries of female deer for later laboratory examination. Such examination provides information on reproductive rate and range condition which is very useful in determining managemen measures. The results of these examinations will be published in *Wildlife* when they have been completed.

These figures are from checking station reports of hunters participating and game killed. The final report, usually completed in March, is based on total permit sales. Thus the final report always shows a few more hunters and a lower average kill because of hunters who bought advance permits but did not hunt.

SUMMARY OF 1958 BIG GAME HUNTS

AREAS AND HUNTS	No. of Hunters	Buck Deer	Anterless Deer	Bear	Boar	Wild Hog
SANTEETLAH						
Party hunts with dogs	665	—	—	12	13	—
Still hunts	940	24	—	6	5	—
FIRES CREEK						
Still hunts	799	54	—	—	—	13
STANDING INDIAN						
Archery hunts*	181	2*	—	—	—	4
Still hunts	1,079	48	—	—	—	17
WAYAH BALD						
Still hunts	375	20	—	—	—	—
SHERWOOD						
Party hunts with dogs	451	—	—	3	—	—
Still hunts	1,622	68	—	—	—	—
PISGAH						
Party hunts with dogs	46	—	—	—	—	—
Archery hunts	643	7	—	—	—	—
Still hunts	6,971	339	69	20	—	—
RICH LAUREL						
Still hunts	511	27	—	--	—	—
FLAT TOP						
Still hunts	633	24	—	—	—	—
MT. MITCHELL						
Party hunts with dogs	100	—	—	—	—	—
Still hunts	2,605	134	62	—	—	—
DANIEL BOONE						
Party hunts with dogs	216	—	—	1	—	—
Archery hunts	407	4	—	—	—	—
Still hunts	4,652	244	76	—	—	—
THURMOND CHATHAM						
Still hunts	446	26	—	—	—	—
SOUTH MOUNTAINS						
Archery hunts	7	—	—	—	—	—
Still hunts	162	3	—	—	—	—
UWHARRIE						
Archery hunts	1,308	31	—	—	—	—
Still hunts	2,678	87	109	—	—	—
SANDHILLS						
Party hunts with dogs	222	—	60	—	—	—
Still hunts	973	25	—	—	—	—
HOLLY SHELTER						
Archery hunts	64	1	—	—	—	—
Still hunts	47	1	—	—	—	—
Party hunts with dogs	501	23	—	1	—	—
TOTALS	29,304	1,192	376	43	18	34

*Archery hunters were allowed to take deer of either sex; sexes were not separated in reports.

Photo by Jack Dermid

FISHING WORMS AT YOUR FINGER TIPS

By Duane Raver, Jr.

IF you enjoy spading up several square yards of countryside in search of fish bait, or forking over half a buck everytime the angling urge strikes, turn the page: this is for those who want a ready, home-grown supply of fishworms.

The size of the worm farm will depend largely on the number of worms you will need throughout the season. Ordinarily a wash tub or a 2' x 3' wood box will produce plenty of bait for an average household. The mechanics of the worm raising operation are basically the same regardless of the magnitude of the venture.

If you want to "winter-over" your stock, the container should be portable to the extent that it can be moved indoors to protect the worms from freezing. New stock can be obtained each year and in this event the tub or box can be sunk into the ground in a shady backyard spot. If the permanent structure is selected, be sure that fine screening is placed over it so that the worms won't go wandering at night and forget to return. Also, tiny holes should be punched in the metal container to provide drainage. This is quite important since earthworms cannot live in standing water or saturated situations. You may find the easiest solution to the container problem is a couple of ten-quart galvanized pails which have been perforated along the lower sides and bottoms. These can be moved fairly easily and should have adequate production capacity.

The material in the container is perhaps the key to success. Beware of sand and clay; even moderate amounts of either may hinder the operation. Of course, small amounts of clay *mixed* in a clay loam work out satisfactorily. A combination of peat moss, decomposed straw or leaves, stable manure and a little screened earth (the richest you can find) provides a loose, non-compacting home for the worms. The mixture should be kept moist but not soaking wet. Some folks have found chlorinated water harmful but small amounts usually aren't noticed. Be careful of overexposure to the hot sun; this will dry out the soil and overheat the worms.

After the containers have been filled, the stock of earthworms should be introduced. If the ten-quart buckets are used, up to 50 adult worms per pail is about right. The worms will soon burrow down and it's not necessary to cover them. Sometimes the use of a moist burlap bag over the surface is a good idea.

For maximum growth and production a good feeding program is essential. It's important not to overfeed since the unused material will spoil and cause mortality among the worms. Foods successfully used include chicken growing mash, coffee grounds, cornmeal and many other odds and ends. One of the latest, and apparently a good one, is homogenized dog food. This can be mixed into the soil initially and added every three or four weeks. One method is to remove the top two or three inches of soil every three weeks and mix in about a half a cup of dog meal per square foot of surface. In the case of the pails used as containers, the remaining dirt is dumped out and the newly fed soil placed on the bottom, with the rest of the dirt put on top. If the bottom soil seems muddy, too much water has been applied. If you find ants in the mixture, you would do well to start over, taking extra precautions about insect contamination.

Under ideal conditions a new crop of worms will appear in about seven weeks, and if properly handled these will be bait size in a little over three months. By using two containers you can empty one, sorting out the usable worms. The dirt containing the egg capsules can be transferred to the second container and the unused big worms returned to the first pail. An average ten-quart bucket worm farm will produce almost 1,000 fishing-size worms and many, many offspring.

Watch particularly for these pitfalls: Keep ants and other insects out of the worm containers. Don't overfeed or get the soil too moist. Keep the containers cool (not over 80°). Rats may burrow into sunken beds and heavy fencing may help discourage them. Obtain good "brood stock" of the variety you like to fish with.

You can save worms by handling them carefully in the container you take fishing. Damp moss is much better than dirt for keeping your supply while fishing. Keep them cool and the ones unused can be brought home and replaced in the big container. You will find that the moss will also help "scour" the worms and make them cleaner to handle.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Caswell Area Purchase Nearing Completion

At a meeting in Raleigh officials of the U. S. Forest Service and the Wildlife Resources Commission worked out final plans for the transfer of the Caswell County Land Use Area from the Forest Service to the Wildlife Resources Commission. Transfer of custody of the area took place during February when personnel of the Commission assumed management of the 14,000-acre tract. The Caswell area will be developed primarily for wildlife and forest management and use as a public hunting and fishing area. Purchased for a total of $891,262.00, three-fourths of which will come from Federal Aid to Wildlife Restoration funds, the area will be paid for over a period of ten years.

Wildlife Commission Studies Rodent Repellents

Means of controlling damage to trees by rodents, including rabbits, are under study by biologists of the N. C. Wildlife Resources Commission. Non-rodent deer, plus such rodents as rabbits and mice, are known to browse on newly planted seedlings in North Carolina woodlands. Experiments in wooded areas of Dare and Tyrrell counties are designed to test the effectiveness of a number of commercial rodent and deer repellents. Findings of the studies could help orchardists as well as timber raisers to produce a more effective crop of seedlings.

Trout Stocking Program Under Way

Beginning March 1, North Carolina's fish hatchery trucks will start a program of stocking more than a thousand of Tarheel designated mountain trout streams with some 55 tons of keeping-eating-size brook, brown and rainbow trout. Supplemental stocking of trout will continue during the trout season. In addition to stocking creel-size trout, Wildlife Commission hatchery personnel will put fingerlings in stream headwaters and reservoirs designated as mountain trout water.

Governor Hodges Designates Wildlife Week

Governor Hodges designated the week of March 15-21 as National Wildlife Week. In a statement, Governor Hodges pointed out the need for teaching conservation of natural resources in our schools. "Our resources," Hodges said, "are the basis on which our state can grow. We must realize from childhood that our natural resources are the basis of the American way of life. We must learn, through our schools and through everyday living, that without natural resources our country and our state cannot grow."

Then Comes the SNOW

Text by Don Hankla

Last winter's snows lend further emphasis to the importance of preserving native food and cover for our wildlife and supplementing nature's larder with planting materials such as those furnished by the Wildlife Commission.

AT best winter is a most critical time in the life of wild birds and animals. The growing season when succulent fruits and shoots were plentiful is long gone. Plant life has for all practical purposes become dormant and the only food and cover that is available was produced last summer.

Winter food for wildlife consists in large part of seeds of field crops, annual and perennial weeds and grasses, and mast from trees and shrubs. Winter cover is of necessity any type of plant growth in which birds and animals can roost, or escape from would-be predators.

As winter progresses, seeds become more and more scarce. Many absorb moisture and deteriorate after a few months, others are covered by falling leaves and stems, and still others are consumed for food. The same is true in general of cover conditions; after a few rains followed by freezing temperatures, clumps of weeds and grasses, heretofore used for roosting cover, become compressed and will no longer serve this purpose. When this occurs quail and rabbits shift their center of activities to denser growths of broomsedge, honeysuckle, sericea lespedeza, blackberry and multiflora rose bushes. Even when winter weather conditions are mild, animals have no picnic when it comes to finding adequate food and cover of good quality.

Then comes the snow—nothing is more beautiful than snow as it covers fields and forest, yet nothing can so severely test the survival ability of wildlife populations.

There are a number of instances on record which relate to birds and animals dying of starvation as a result of snow. During the recent December snow North Carolina game biologists and other observers of nature noted that many doves, rabbits and song birds died, presumably as a result of snow which remained on the ground over a prolonged period of time. Here as in most other cases had there been adequate food and cover available, many of the animals which died might have survived. Cover such as that afforded by honeysuckle and sericea lespedeza saved countless thousands of quail and rabbits throughout North Carolina. In some instances where no cover was available, coveys were observed to be roosting on small bare spots under

Available to wildlife during the winter months are many wild plants with seeds, fruits and berries. Pokeberry, a preferred food of mourning doves, is readily available during early snows but generally does not last throughout winter seasons.

Strips of unharvested grain and silage crops, such as milo, help quail during heavy snows. Such supplemental sources of food are necessary for quail and other birds to prevent an excessive winter loss to starvation, disease and predation.

cedar trees and on the windward side of gulleys and creek banks. (Coveys have been known to take shelter even under corn cribs in old barns).

Seed heads of corn, cane, milo, pokeberry and sumac which normally hang several inches above the ground proved invaluable as a source of food for quail and other birds. Rabbits took advantage of the snow to gnaw the bark a little higher on shrub lespedeza and blackberry bushes and willow tree sprouts, but they still found food to be a rather scarce item.

The greater part of winter losses in game come as an indirect result of insufficient food and cover. Predators, disease, and weather may do the actual killing; however, their ability to take game is dependent on food and cover availability. Snow renders movement on the ground by quail and rabbit very difficult. In addition they lose the advantage formerly afforded them by protective coloration. Certain game birds such as the ruffed grouse are known to burrow beneath the snow at night and emerge the following morning. Snow prisons frequently form and trap birds and animals beneath the snow. Bobwhite quail often will leave the roost when snow covers the ground to feed in adjacent fields. Quite frequently they have been observed flying across snow-covered fields and alighting on bare spots on the south slopes of banks where the sun has melted the snow. Such foraging activities consume energy at an increased rate and often lead to the loss of weight. Animals thus become weak and are susceptible to disease and predation.

Food and cover are the key to game abundance regardless of winter conditions. The Wildlife Resources Commission urges every farmer, landowner, and sportsman to take stock of the situation and plan on planting wildlife food and cover patches early this spring in areas where there is a shortage.

Starvation foods, taken only during times of great need, include plants such as dwarf sumac, shown here in an abandoned tobacco plant bed. These foods will sustain game for short periods, provided that sufficient quantities can be found.

Sericea lespedeza, above, forms dense growths that protect roosting animals from the snow and provides emergency food. Shrubs such as deciduous holly, below, may provide some food but generally lack the cover necessary to protect birds from the weather and from the ever-present natural predators.

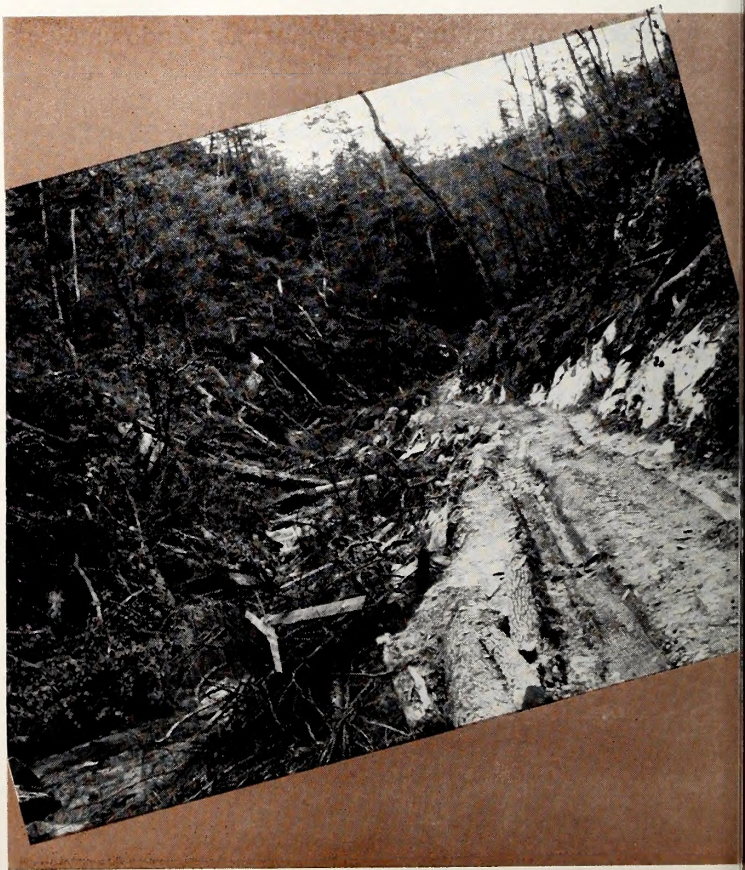
LOGGING, FISHING and SILT

By Jim Lee

Logging roads and skid trails can be located to allow minimum damage to the watershed—or they can ruin the forest and the fishing through wasteful soil erosion.

THE fisherman paused and wiped his face after the long climb. A feeling of bitterness and disgust swept over him as he looked at the formerly clean and productive trout stream. Choked with logging debris and silt, no fish would rise to his fly this year from the creek that once provided hours of excitement for the anglers that waded the water.

That has been the story on many streams, not only in the mountains but in the Piedmont as well.



Wherever steep slopes and narrow valleys present a problem to the logger, there is always the temptation to take the easy route—along the stream beds and intermittent watercourses. And where the landowner has allowed the logger to yield to the temptation, the result has been the same—destruction of soil, water and wildlife.

Landowners who insist that care be taken in the location and construction of logging and skid roads have found that many benefits accrue, with little or no increase in cost. Others, who have agreed to haphazard locations, have been left with clogged streams, scarred and eroded hillsides, and roads that have no further value after the logging crew has gone.

The U. S. Forest Service has definite specifications in their contract with private loggers. The contract assures the Forest Service that logging and skid trails will be so placed that there will be a mimimum of damage to the watershed.

Their requirements regarding the location of loggings roads include stream crossing specifications, maximum road grades, and frequency of cross drainage. Stream crossings should be over bridges where practical. Where fords are necessary, the road should dip in and out of the stream instead of following the stream. Approaches should be surfaced with crushed rock or gravel. Maximum grades should be held to 15 percent, and such grades should have cross-drainage with open-top culverts every 200 feet. Grades on curves and switchbacks should not exceed 10 percent. On steep slopes, landings and log decks must be on the upper side of the road.

On National Forest logging operations grading is limited to dry periods, and unfinished grading left over winter must be protected against erosion. No excavated material or logging debris may be put in stream beds. Fills near running streams must be seeded and mulched with brush or straw to prevent erosion.

The effect of silt from careless road-building has been studied at the Coweeta Hydrologic Laboratory and elsewhere. During one carefully planned logging operation, sediment in a Georgia stream was little more than that in a nearby unlogged area. At Coweeta, near Franklin, nearly eight times the silt normally present was found in one poorly logged area.

Silt is especially damaging to trout streams, where the health of the cold-water fish depends on temperature and the presence of aquatic insects for food. Clogging a stream with silt slows the speed of the moving water and allows still pools to form behind logging debris. If mid-summer temperatures go above those tolerated by trout, fish may die if there is no cooler water available. Bottom insect below a logged area at Coweeta in one Wildlife Commission study could support less than a third the trout which could be fed above the logging damage.

Before you agree to logging practices that might damage streams on your land, take a second look. Helpful information is available from Extension Forester, N. C. State College, Raleigh.

The Legend of the Trailing Arbutus

In the moons of long ago, there lived an old man alone in his lodge beside a frozen river. Long and white was his hair. He was clothed, too, in rich snowy furs, for it was winter everywhere. Snow and ice covered the ground; the chill winds wailed through the forest. The birds had flown away, and the animals were hidden in their holes to escape the bitter cold. The old man sat gloomily in his wigwam by the side of his dying fire.

Suddenly a warmer breeze blew aside the flap from his doorway, and into his lodge stepped a most beautiful maiden. Her cheeks were like wild roses; her eyes twinkled with star light; her hair, which hung over her shoulders in rich and silken tresses, was deckled with bright blossoms; her dress was woven of dainty grasses and trimmed with bursting buds; her moccasins were white lilies. In her breath was the mingled perfume of the most fragrant blossoms.

The old man rose to greet her as she entered: "Welcome, my daughter," he said with a trembling voice. "My lodge is cold and cheerless, but it may give you some shelter from the biting blast. Be seated here on my mat of furs and tell me who you are that dare to enter thus my snowy realm.

"Did you not know that I am a Manito—Peboan, the God of Winter?"

"I, too, am a spirit with power," returned the maiden, "The Goddess of Spring. But I came, Peboan, to hear of your mighty deeds."

"When I blow my breath," replied the Winter King proudly, "the rivers and lakes stand still.

"When I breathe," returned the maiden laughingly, "flowers spring up o'er all the meadows."

"When I shake my hoary locks" the old man boasted, "snow comes falling and drifting to cover all the earth."

"I toss my tresses," said the maiden, "and warm showers sprinkle all the thirsty plain."

"When I wander o'er the world," said Peboan, "the leaves fall, the animals run to their holes, the birds fly in haste to realms of sunshine."

"When I come dancing o'er the earth, the plants lift up their heads, blossoms deck the naked trees, birds return with joyous songs, and all the world grows glad again."

While they talked, the air became warmer; the old man grew drowsy; his hoary head dropped on his breast. He slept, and as he slept, the maiden passed her hands above his head, and he began to dwindle away. His cold body gradually melted into streams, which laughed and glistened as they danced along.

When he had completely vanished, the maiden, kneeling, took from her bosom the most delicate of white flowers and hid them under the leaves. Then she breathed upon them and said, "I give thee all my virtues and my sweetest breath. Let him who plucks thee do so upon bended knee."

When this was done, the Spirit of Spring tripped away over the plains and through the woods, and wherever she stepped, there and no where else, grew the arbutus.

PROTECTOR OF THE MONTH

Robert E. Milstead, Jr.

Robert E. Milstead, Jr., wildlife protector in Rowan County, was born on November 16, 1923 in Taylorsville, North Carolina, and is the son of Mrs. Ed Milstead of Kannapolis, North Carolina. He moved with his family to Kannapolis at an early age, and lived there until he graduated from J. W. Cannon High School in 1941.

During World War II, he served with the U. S. Marine Corps in the South Pacific for three years, and after the war returned to Kannapolis and was employed by Cannon Mills. In 1951, Mr. Milstead attended the Wildlife Protectors' Training School, and was employed by the Commission on July 1, 1951. He also completed a training school for wildlife protectors in 1958.

Mr. Milstead is married to the former Elizabeth Goodman of Kannapolis, and they have two children. He is a commercial airplane pilot, a member of Eureka Lodge No. 283, a member of the China Grove Civitan Club, and the First Presbyterian Church of Kannapolis, North Carolina.

ENFORCEMENT RECORD FOR DECEMBER

Persons checked	32,331
Total prosecutions	722
Total convictions	694
Total cases not guilty	21
Total cases nol prossed	7
Total fines collected	$6,203.00
Total costs collected	$4,689.65

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: How many fish may be taken legally in a daily creel limit?

ANSWER: The daily creel limit of fish may include 10 mountain trout, 8 black bass, and an aggregate of 25 of the game fishes other than black bass or mountain trout.

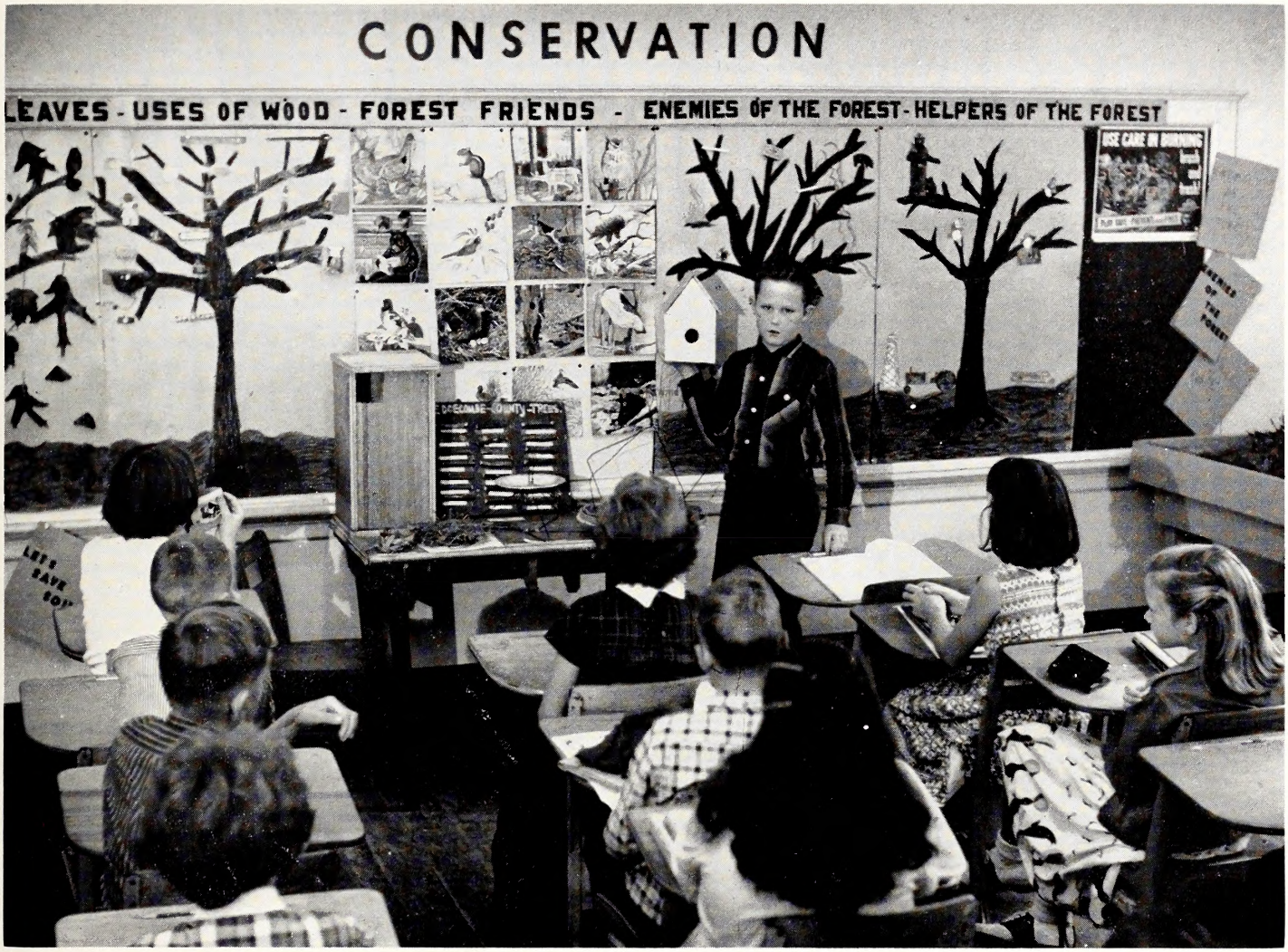


Photo by Jack Dermid

CONSERVATION IN THE SCHOOLS

is the challenging theme of National Wildlife Week, March 15-21. Conservation education in our schools is one of the most important needs facing America's youth—future guardians of our resources.

PEOPLE'S concern for the lands upon which we live—and all the people of the future must live—is linked closely to a basic concern for the well-being of others. This must be instilled in our younger generations through the teaching of conservation in our schools.

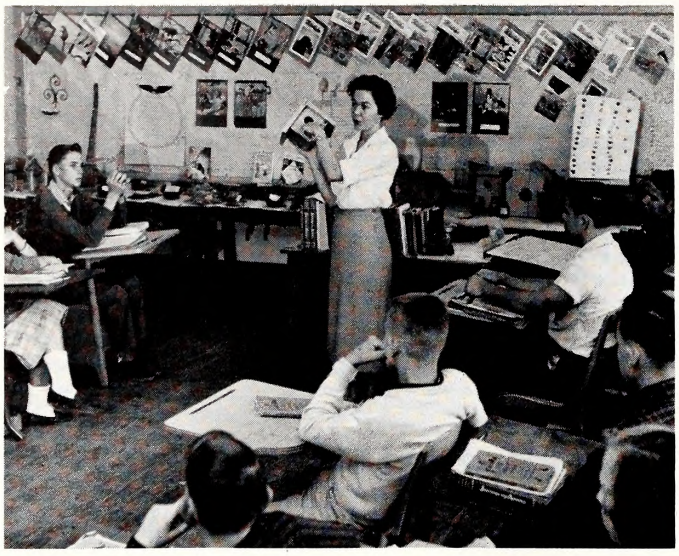
Conservation is a way of living. It calls upon us to care for the resources we require in order to live—crops from our soils, lumber from our forests, cattle from our range lands, water, wildlife, and even the outdoor places where we seek relaxation and relief from our everyday cares.

Conservation is also a way of thinking. Like the principles of self-government that we have come to regard as the foundation of our democratic system, its basic concepts must be imbued in our children as they learn about living—from kindergarten through college. School experiences can give them opportunity to learn about conservation by practicing it, even if only on a small scale within the playground or schoolyard. Through this exposure, during their formative years, conservation can become a guiding philosophy in their lives.

By learning about our resources and the care we must give them, our young people will see that a good share of the world's troubles stem directly from our past failures to learn to live with the land, instead of against it.

Conservation has a place in every classroom in the nation, and many schools in North Carolina are forging ahead with sound programs. The above picture, taken at Crisp Elementary School, shows many of the educational benefits that can be derived from conservation projects. Please turn the page for an important summary of the work being accomplished at Crisp. Read it—then do your part for conservation education.

National Wildlife Week was first proclaimed by President Franklin Roosevelt in 1938 and has been sponsored annually since by the National Wildlife Federation to focus public attention on the importance of our natural resources.



Teachers of Crisp school are aware of their opportunity to bring the concepts of conservation to all youngsters—education as vital to the American way of life as the three R's.

Conservation has many aspects and can often be coordinated with other subjects. In building squirrel boxes, these boys learned about wildlife while developing their craftmanship.

RURITANS HELP TEACH CONSERVATION

By Margaret M. Eagles
Principal, Crisp Elementary School
Macclesfield

Photos by Jack Dermid

IN the spring of 1957, Levie Owens, chairman of the educational committee of the Crisp Ruritan Club, approached the principal of Crisp Elementary School expressing the desire of the Ruritan club to work through the school to promote conservation education. The Ruritan club at that time was less than a year old, but it was making tremendous strides in recognizing problems and in promoting worth-while projects. The seven members of the Crisp school faculty were receptive to Mr. Owens' plan that the Ruritan club sponsor a poster and story writing contest on soil and water conservation.

Crisp is a rural community located in the southern part of Edgecombe County. The Crisp Elementary School, with an enrollment of 228, is a part of the South Edgecombe School District. Crisp is a village consisting of two stores, a church, a school, forty or so residences, and no postoffice. Mail comes through Macclesfield, R.F.D. Farming is the primary interest of most families.

Realizing that few results would be had if only an announcement was made that prizes would be awarded for posters and stories, the staff of the school decided that during the fall of 1957 conservation units should be taught in each grade. Each teacher was at liberty to plan with her pupils the particular aspect of conservation which they wanted most to explore. Some chose wildlife, some forestry, some soil erosion, and some water conservation.

The beginning was in 1957. In the spring of 1958, the faculty of Crisp school was more than eager to continue their plan for teaching conservation units in the fall. The Ruritan club had again made known its wishes to sponsor a contest, the type to be decided by the teachers. It was decided that in order to give recognition to different kinds of creative activities the 1958 prizes would be given to individuals for story or poem writing and to classrooms for exhibits or demonstrations.

Each year the culminating activity for the unit has been a program presented to the public in which the aspects of conservation of our natural resources are depicted. The programs were given at a regular meeting of the PTA. The awards were made by members of the Ruritan club. The programs were varied, included much creative work by the students, and were emceeded by students.

Throughout the planning and execution of the units the students and teachers have had much valuable assistance from such people as the personnel of the Soil Conservation Service, Miss Lunette Barber of the Wildlife Resources Commission, the

Ruritan Levie Owens watches as students compare the benefits of good soil conservation with the waste that results from negligence. Prizes were offered for best classroom exhibits.

Here is how an enterprizing civic club, cooperating teachers, and enthusiastic youngsters brought conservation to the classrooms of Crisp Elementary School.

A quail family flees before forest fire—modern art with a meaning produced by first-grade student at Crisp school. Conservation subjects fire the imaginations of young artists.

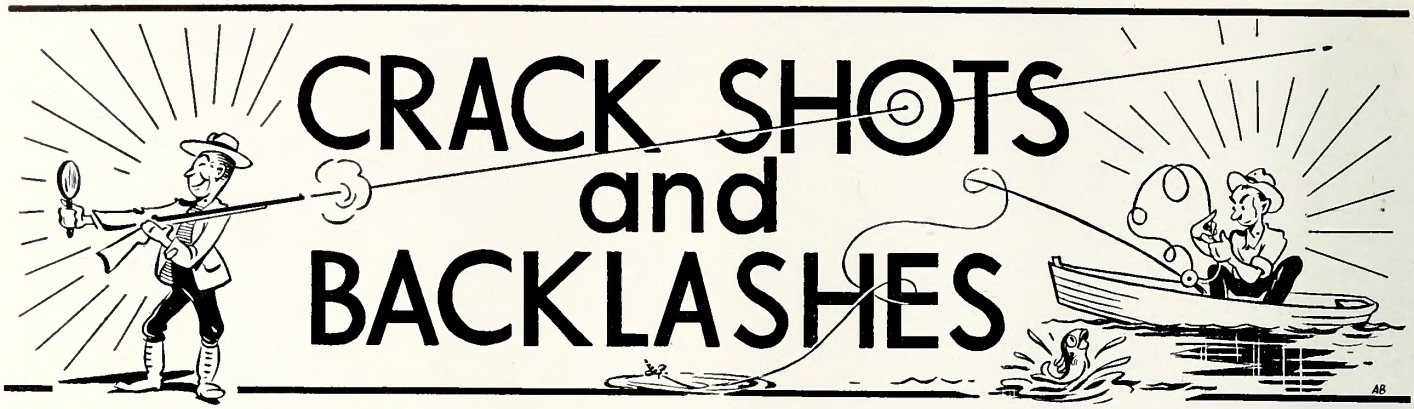
fire warden of the county, the supervisor of Edgecombe County schools, Mr. Owens and other interested Ruritans. Films, film strips, and other materials were obtained from many commericial concerns as well as from governmental agencies.

Interest in conservation is not confined to the few weeks of concentrated study and effort. Bird feeding, animal and bird censuses, protection of wildlife, stray dog and cat control, and agricultural conservation practices are continued throughout the year.

For the individual student there is much satisfaction in this activity. Interest in nature and in the land is basic with the rural child. For some there is an opportunity to gain recognition when in other areas they could not compete. For all there is an opportunity to participate in rewarding activity.

It is hoped that the interest that has been engendered in conservation in Crisp school through working with the Ruritan club will spread to other communities. The school is most grateful to the Ruritan club for starting a systematic study of conservation. The entire staff plans to broaden its scope of activities in the years ahead, and in doing so, hopes to have a part in bringing a complete understanding of conservation and an appreciation of the out-of-doors to every student.

"We make our own peanut butter for the birds," the boy said as he held up a feeder made with bottle caps. His enthusiasm is proof that youngsters are eager for outdoor knowledge.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

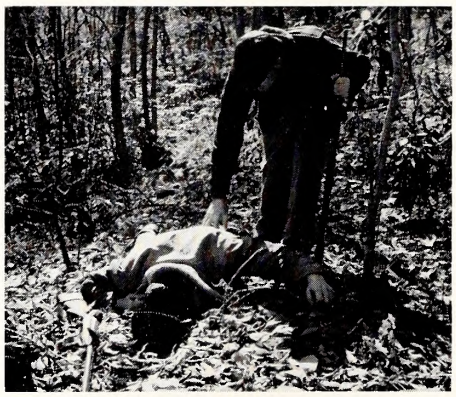
Compared with many other states North Carolina has an enviable record of safety in the matter of hunting accidents. Nevertheless too many people have been killed or injured in hunting mishaps, and during the past hunting season more fatalities occurred than ever before.

At a meeting in late January the Wildlife Resources Commission took formal recognition of its obligation in the matter of safety in handling firearms (related to hunting) and voted to sponsor and support legislation designed to control the careless and negligent use of firearms within the limits of its normal jurisdiction.

To anyone who has read the newspapers during the past six months the need for gun safety laws and their enforcement is obvious. Education, poster campaigns and editorials serve their purpose in this problem just as they do in the matter of highway safety. They cannot, however, go far enough. There must be laws governing the use of sporting arms just as there are laws governing the operation of motor vehicles; further, there needs to be a specific group of enforcement officers to ensure that reasonable and acceptable laws are enforced.

The State Highway Patrol is charged with enforcing laws regulating the safe and reasonable operation of motor vehicles on our highways. It is only reasonable that State wildlife protectors be given authority and responsibility to enforce laws regulating the safe and reasonable use of firearms in the field.

A workable hunting safety law would contain several basic elements. First, it would make the careless or reckless use of guns or archery equipment in hunting territory a misdemeanor, punishable by fine and the surrender of hunting privileges for from one to five years, depending on the seriousness of the misdemeanor and subject to the discretion of the court. Just as in motor vehicle safety law, a hunting safety law should require persons causing temporary or fatal injury to report the incident to authorized representatives of the Wildlife Resources Commission or a peace officer within a period of twenty-four hours. This element would help to curtail "hit and run" shooting.



Further the fact of an accident involving an injury should constitute prima facie evidence careless or negligent use of a weapon.

Wildlife believes that every thinking sportsman will see the need for such legislation.

WATER CONSERVATION

At a meeting of the State Association of Soil Conservation supervisors, General J. R. Townsend, chairman of the State Board of Water Commissioners, outlined some mighty important aspects of water conservation in North Carolina. He emphasized the need for impounding water for flood control and emergency drought use. Such impoundments usually have an important impact on fish and game. Sportsmen would do well to read the general's statements:

"The principal causes were our carelessness with water and weaknesses in our management of the resource," he declared. "The droughts of recent years simply let our mistakes catch up with us. The immediate concern of our planning now must be the next hard droughts—whenever they may come.

"If we do not manage water properly, future droughts may well make those of the past look like only the warmup for the big game.

"Our concern then must be drought control," he continued. "That resolves itself into a question of ironing out the natural irregularity of water delivery. The problem is one of storage and distribution—a problem of storage when the streams are flowing full and of being able to distribute when the need arises."

Gen. Townsend pointed to the benefits possible from dams designed for both flood and drought control. They provide storage capacity to hold flood waters and store additional water which can be released in dry seasons to keep streams flowing.

The proposed Wilkesboro Reservoir on the Yadkin River is of the flood-drought control type, he said, and the drought-control feature would permit "a low flow of 352 million gallons a day as against a recorded low flow of 214

million gallons a day at Yadkin College."

He suggested that the same principle can be used in the small watershed improvement program sponsored by the soil conservation supervisors under Federal Public Law 566. Under the program the Federal government pays the cost of dams and other works to control floods on small watersheds.

"The basic flood-control dams you plan can be enlarged and become drought-control dams as well," he said. "The reservoirs can be designed to hold sufficient water not only for maintaining stream flow below the dams but also for irrigation and any other use.

"I stress irrigation because the problem of water for agriculture is one that the Board of Water Commissioners feels most keenly. It is a matter which is in your hands, for you, the agriculturists, are the ones concerned. It is a program for your thinking as to the future."

He praised the contribution of soil conservation practices toward better management of land and water.

Gen. Townsend advocated "a strong state administrative agency which has supervision and control over all the waters of the state."

"The authority of this agency should be such that there will be an assumption by the State of responsibility for water resources," he said. "This does not imply the assumption of ownership of the water; any law must protect the rights of private ownership."

He said the Commission on Reorganization of State Government was making progress along this line "in preparing legislation which proposes to centralize the bulk of the State agencies now dealing with water into one agency."

Other needs are continuing collection of basic data on water resources, analysis of the data, and planning for the efficient use of water and pushing the plans to execution, as declared.

"Then there is the need for study of means of development," Gen. Townsend said. "This involves the dollar, and it means someone must produce the dollar. Further, it means that engineering plans must be carefully worked out, so that half-baked ideas will not be accepted and that benefits will balance out the costs.

Officers of the Wildlife Resources Commission elected at the January meeting are, left to right, Robert M. Carr, Wallace, vice-chairman; Thurman Briggs, Lexington, chairman; and T. N. Massie, Sylva, secretary. Reappointed for six-year terms were James A. Connelly, Morganton; R. Floyd Crouse, Sparta, and T. N. Massie.

"The question of participation in the cost by the State surely arises," he continued. "Where a flood-drought control project is initiated and where the national government will pay all costs except the drought-control feature, would it not be well for the State to assume that cost initially and assess it against those who will benefit? Some states are assisting in sewage disposal plants. Would not the same rule hold here?"

Gen. Townsend said study also should be made of the expected use of waters.

"This calls for careful consideration of all the economic factors involved and for State action in fitting the usage of water to the economic needs," he declared. "This offers a wide open field for state planners of common sense and judgment."

He summarized the two legal systems governing water use in the United States. The western states follow the statutory doctrine of prior appropriation, under which users take water on a first come, first served basis. North Carolina and other eastern states go by the common-law doctrine of riparian rights, under which the right to use water is attached to the land over which the water flows or which it bounds.

Both systems have defects, Gen. Townsend said, and "certainly there is need for rules of law which are practicable and can be administered." He said the Water Commissioners are giving careful study to a model water use act prepared for the Council of State Governments which may easily be adapted for enactment by any state.

"It may be the answer to our need for a workable law," he declared.

The model act contains provisions that recognize and protect constitutional rights; prohibit waste and inefficient use of water; call for beneficial use of water; seek to assure a dependable supply of water so that private and public users may continue their economic investment; and set up an administrative procedure for carrying out the act.

WANTS TO TRAIN BEAGLES

"DEAR SIR: "We all enjoy your magazine and especially the article on rabbits in the December issue.

"I have some beagle puppies and would like to know where I can get some infor-

With a surplus production of 10,000 pounds of sericea lespedeza seeds, Wildlife Commission game biologists are now accepting applications for two- and four-pound units of this valuable wildlife food and cover plant for use during the coming spring.

mation on how to train them. I am 14 years old and have just started hunting and know very little about training puppies.

"I have seen some rabbit scents advertised in magazines, and have thought of ordering some. Do you think this helps in training puppies? If so where can I obtain it.

"Enclosed is $1.00 for subscription renewal. EVERETT DAVIS, PIKESVILLE.

Dear Everett: We are not experts on beagle training, but some of our readers are. Maybe you will hear from some of them.

YOUNG DEER HUNTERS

DEAR SIR: Enclosed you will find a check for one dollar to extend my subscription for one year from September, 1959, and renew the subscription of the Rev. B. D. Shelton, Siler City, for one year. I think you are doing a wonderful job with Wildlife in North Carolina. Enclosed is a photo of three of my Eagle Scouts from Troop No. 1 of Pumpkin Center, Lincoln County. We enjoyed a very fine deer hunt this year at Uwharrie Reserve. You have one of the finest men I know of there and Mr. Ollie Thompson is doing a splendid job.

The scouts were only able to hunt two days during Thanksgiving but every minute of it was a thrill to them. Pictured from left to right Roger Cloninger; holding a six pointer in the middle is Kermit Goodson, and next Lawrence Keever. The large eight pointer was taken by Scoutmaster D. C. Cloninger which field-dressed 180 pounds. We plan to hunt again next year with five Eagle Scouts. D. C. CLONINGER, LINCOLNTON.

KEEPING LIVE GEESE

DEAR MR. PATTON: In a letter of December 18 to Mr. Rosey Armstrong, Fairfield, North Carolina, Mr. Ben H. James advised that he was referring a letter of inquiry from Mr. Armstrong to Mr. Robert Halstead for reply. Copy of Mr. Armstrong's letter, together with a copy of Mr. James' letter, was forwarded to this office.

We are attaching a copy of our letter to Mr. Armstrong today in which we have attempted to answer his questions regarding the possession and handling of Canada geese in connection with hunting activities in the Fairfield, North Carolina area.

We hope the answer we have given Mr. Armstrong will clarify the handling of live Canada geese in connection with hunting of migratory waterfowl. F. C. GILLETTE, CHIEF, DIVISION OF WILDLIFE BUREAU OF SPORT FISHERIES AND WILDLIFE.

DEAR MR. ARMSTRONG: Copy of your letter concerning a permit to keep geese has been referred to this office for reply.

Since you are writing the State of North Carolina regarding a permit, we assume it also will be necessary to obtain a propagating permit from the Bureau of Sport Fisheries and Wildlife, in the event you intend to propagate waterfowl.

For your information, the law does not specifically require that you keep your geese fastened up and one-mile or more from the hunting area. However, geese running at large in fields adjacent to hunting areas are very likely to constitute a lure and attraction to the wild birds, from which the hunter benefits. If this is true, the hunter will be in violation of the regulations by taking migratory waterfowl by means, aid and use of live decoys.

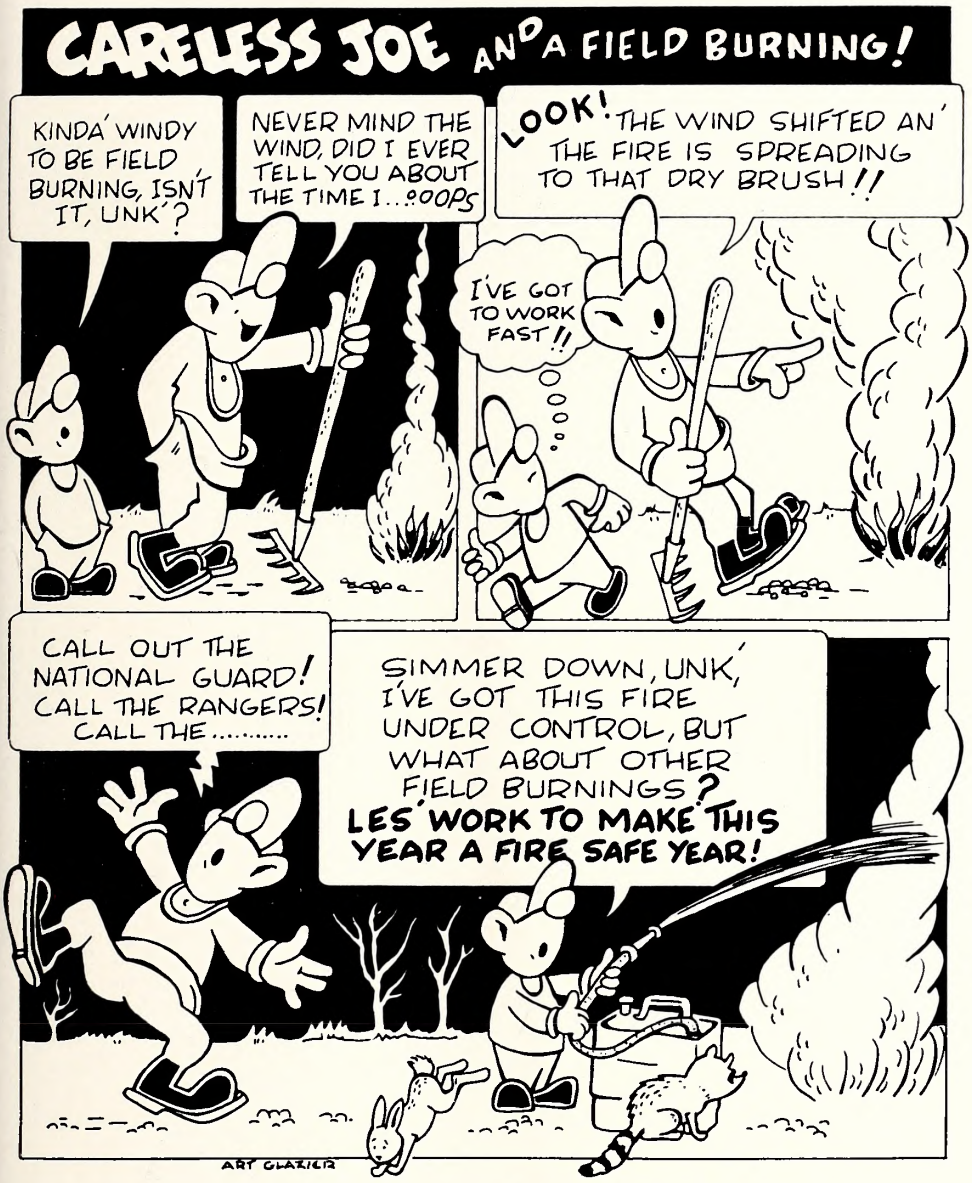
There is also the possibility that in feeding the tame geese wild birds will be lured to the area by the presence of the feed. It is a violation of the regulations, of course, to take migratory game birds by means, aid and use of grain and other feed, or salt, which may constitute for such birds a lure or attraction to, on or over the area where hunters are attempting to take them.

Under the circumstances, in order to eliminate the possibility of an unintentional violation on the part of the hunter, it seemed desirable to establish a policy of requesting removal of live birds from the hunting area prior to the time any hunting is done. The actual violation does not occur until the hunter commences to hunt waterfowl, but if the birds he is hunting have been lured or attracted to the area being hunted by the live birds or feed he is in violation of the regulations. It is not necessary that you keep your geese penned up all the time. They should be removed from the area where hunting is to be done well in advance of such hunting, since the lure undoubtedly remains for some time after the decoy geese have been taken away. It is believed that the one-half mile distance is well within the distance the geese will decoy under normal conditions. Confinement of the birds under such circumstances, in a manner that they cannot be seen from the air, is desirable and should not work a hardship on the owner of the birds. This action will result in protection of the hunters against unwitting or unintentional violation of the regulations.

We hope the foregoing will clarify this matter to your satisfaction. WILLIAM T. DAVIS, REGIONAL SUPERVISOR, MANAGEMENT AND ENFORCEMENT U. S. FISH AND WILDLIFE SERVICE.

STRIPED BASS EXPLOITATION

DEAR SIR: Just got my first look at your very fine publication which was sent to me by one of our members in your state.



The reaction? Here's my dollar for a 2-year subscription.

Am very pleased to see that hard-hitting exposé of the over-exploitation of undersize bass. (Page 10, November issue.)

Along the whole range of our 10-state organization we're working for a 16" snout to fork-in-tail minimum size and I'm sure you'll agree with that position.

We hope to enter the North Carolina situation quite soon through our member clubs there. Our structure is based on strong state chapters headed up by a state chairman. The inter-state structure allows a helping hand to be extended to any state in which action is indicated.

Since we started this organization last year, it has grown so fast and the amount of work involved increased to such an extent the membership has made the office of president a full-time salaried proposition requiring me to give up my regular work, set up an office and devote myself exclusively to this work.

There's no doubt about it being an essential requirement and when the final vote was taken, after discussing it for three meetings, there was just one negative vote cast. One club from Maryland thought that the whole vast program should be handled on a voluntary basis. I guess that most of us had seen enough of the "voluntary" work which might be okay for a "one shot" crusade when everyone gets excited over a particular issue, but that does not apply if you're working toward something that will last for years and be in constant operation.

So, in a way, we're co-workers in the field. Lord knows I'm no scientist but I'm liable to learn something as I go along. DUDLEY SMITH, POINT PLEASANT, N. J.

MOTOR BOAT AND VACATION SHOW SCHEDULED FOR CHARLOTTE—RALEIGH

Outdoorsmen by the tens of thousands will flock to Charlotte and Raleigh to see the latest in outdoor recreation equipment and watch a ten-act stage and tank show. The Charlotte show is scheduled for February 17-22, and will be held in the Charlotte Coliseum. The Raleigh show is slated for March 30 through April 4 in William Neal Reynolds Coliseum.

In addition to boats of all descriptions, fishing tackle and other outdoor gear, outdoorsmen will see such feature attractions as performing Siberian huskies, a golden eagle and other birds of prey in controlled flight, casting demonstrations, log rolling, canoe tilting, trained seals, archery demonstrations and a forty-foot high dive into four feet of water.

The Wildlife Commission will have an exhibit which will include live fish, both native and introduced species. For foot-weary visitors there will be continuous showings of Tarheel vacation and wildlife films.

The admission price for both shows will be $1.00 for adults and 50¢ for children.

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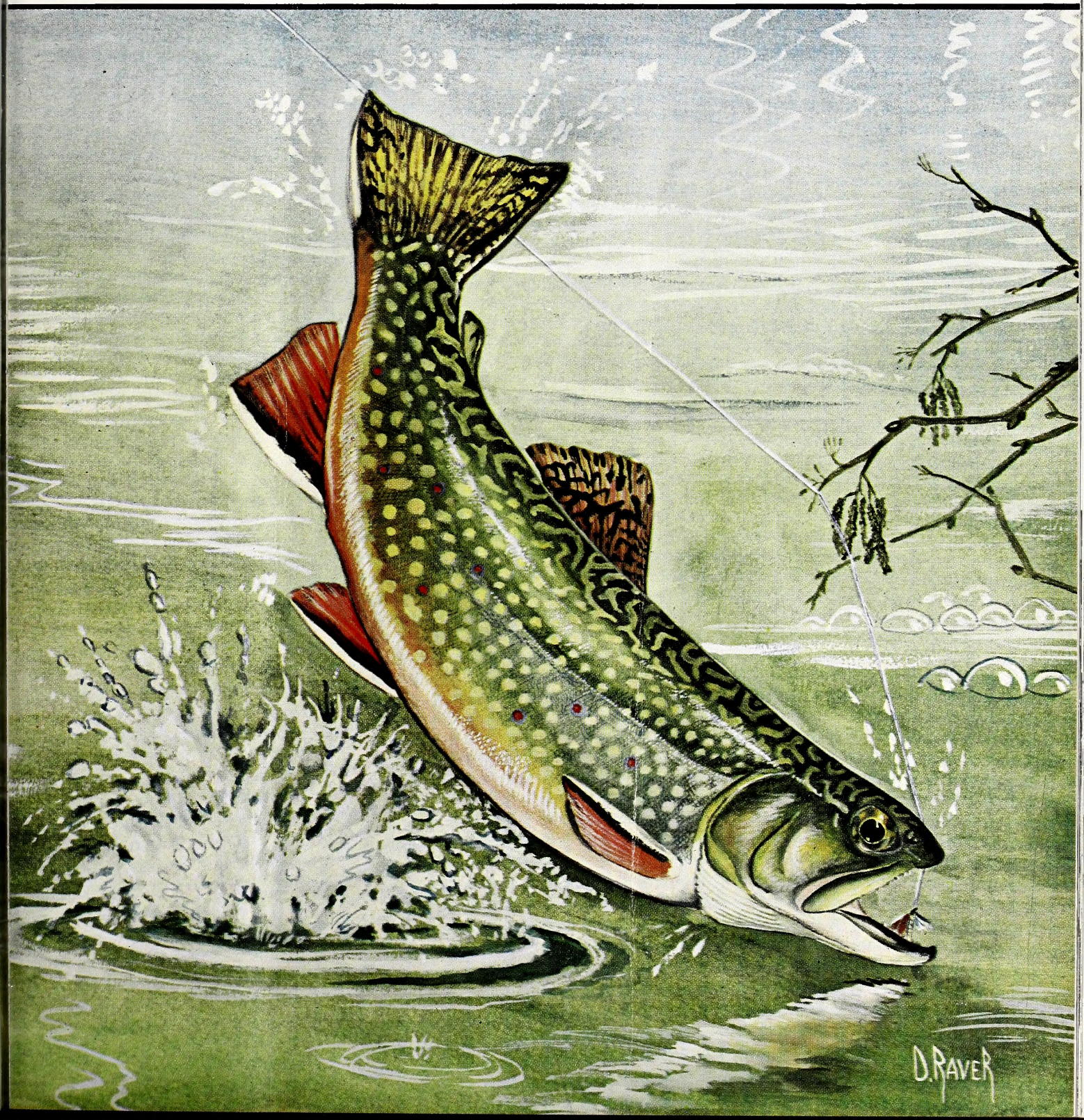

Photo by Jack Dermid

Squirrel Triplets

These six-week-old gray squirrels have been taken momentarily from their nesting box by Robert Soots, State College graduate student. They will be weighed, measured, and marked for future identification as part of Soots' study to determine the effects nesting boxes have on increasing squirrel populations. This important research is being conducted at Umstead State Park and is sponsored by the Wildlife Resources Commission in cooperation with the State College Department of Zoology.

State of North Carolina
LUTHER H. HODGES
Governor

North Carolina
Wildlife Resources Commission

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Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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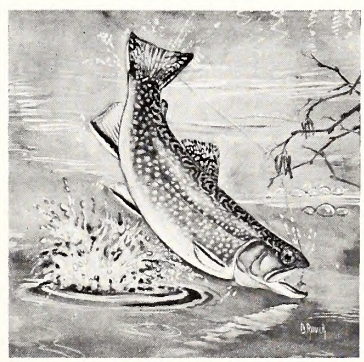

When the brook trout realizes that he's been fooled—look out! The native of our higher and colder mountain streams is capable of a spectacular leap as he tries to rid himself of the hook. You'll find plenty of these tough fighters waiting for you when the trout season opens April 4 at 7:00 a.m. Along with browns and rainbows, the brook challenges anglers whether they use dry flies, wet flies, salmon eggs or earthworms. Be sure to have a special trout license if you fish a designated mountain trout stream. Cover painting by artist Duane Raver.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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Photo by Jim Lee

Channel Bass Ain't

The channel bass really isn't a bass... but, as one Tarheel angler said, "He puts up a right satisfactionable fuss!"

By Rod Amundson

ALTHOUGH books and articles have been written about the channel bass (or red drum), any conscientious author will begin by admitting a great deal of ignorance about this fabulous fish. Having admitted such ignorance, let's go on from there.

Confusion about the channel bass begins with the name. There are two vociferous but friendly schools of thought as to what this popular game fish should be called. Because of considerable resemblance to the fresh water bass, many people, particularly along the Virginia-Carolina coast, call it channel bass. Scientifically, however, the fish is in the same family as the sea drum, croaker, spot, and trout or weakfish. Thus if you want to get downright technical about it, red drum would be the more accurate name. We prefer to call it channel bass, mostly from habit, and to use a variety of other unprintable names for specimens that have gotten away through sheer cussedness.

Scientifically the fish is of the family Sciaenidae (you pronounce it), the genus *Sciaenops* and the species *ocellatus*. Chap named Linnaeus first de-

scribed and named it. That is about as scientific as you can get with the channel bass. The rest of the information comes by guess and by golly, from personal experience and records, and prevarication on the part of channel bass fisherman. The latter would probably make much better reading than cold scientific statistics.

The channel bass is a big fish, sometimes exceeding eighty pounds. As to its sporting qualities, the words of a Tarheel bass angler described it thus: "He puts up a right satisfactionable fuss." One of the largest ever taken on tackle was an eighty-three pounder landed off Cape Charles, Virginia, by fifteen-year-old Zack J. Walters Jr., of Salisbury, Maryland. Zack's fish weighed just twenty-one pounds less than Zack did, and broke all previous records for the species taken on rod and reel. It won him a new car, an extra set of tires, and fifty bucks worth of assorted merchandise. The bait used is undisclosed.

Information on the life history of the channel bass is scarce indeed. The range is fairly well established, being from New York to Mexico. The fish are rare or uncommon north of Virginia, however, and are found most abundantly along the sandy shores from Virginia to Florida and along the Gulf of Mexico. There is considerable evidence of migration. The big copper scrappers show up most abundantly along the Carolina coast in late spring, and another run occurs in the fall of the year, usually late September and well into October or even into November. Spawning occurs in late fall or early winter, and it is believed that the fish go into the sounds and river estuaries to spawn. No one has yet identified the eggs or newly hatched fish. Tarheel weakfish or trout anglers were surprised

No Bass

recently by big, tackle-busting channel bass. They were fishing in a bay on the Pamlico River estuary in November, using light tackle for trout. After losing considerable line and several lures to big fish, they rigged up heavy tackle and fell to catching channel bass in the 50-60 pound class. They had believed that channel bass stay out in the ocean throughout the year, but here they were over forty miles from Ocracoke Inlet.

There are probably hundreds of just such bays or guts along the Atlantic coast from Cape Charles

Photo by Bill Gulley

Landing a heavy channel bass in the surf can be a two-man job, as Hatteras anglers prove with a bronze-backed monster.

to the Mexican border where big channel bass go to spawn. It will be up to the exploration-minded anglers to find them. Exploratory efforts would be well rewarded. A sixty-pound channel bass on the other end of the line in a small skiff should give even the experts something to get glassy-eyed about!

It may be supposed that once hatched, channel bass make their way toward the sea. Small ones, eight to ten inches in length, have been taken by bottom fishermen in the sounds where normally spots and croakers are found. Surf casters frequently take "puppy drum," channel bass in the two or three-pound class. Similar fish are taken from ocean piers.

In addition to the inland spawning migration, there is a definite north-south migration along the coast, with the fish heading northward in the spring and southward in the fall. Although the channel bass is not considered a good food fish, it is considered to be most edible during the southward migration. What causes the change, if any, in flavor is probably the type of food on which the fish have been feeding along the route.

People who have studied the channel bass consider it to be a rather dull or stupid fish, moving to within a few feet of a dangerous object, then taking off like a scalded tomcat at the slightest motion or

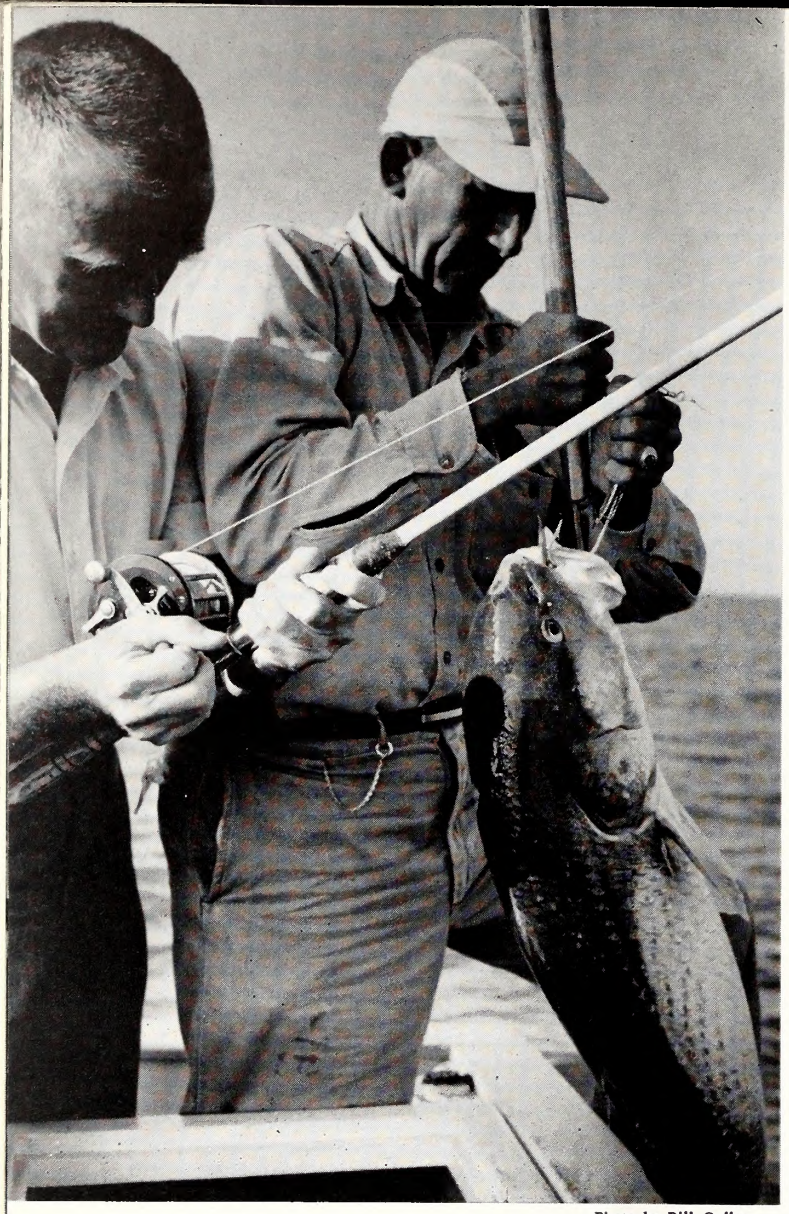


Photo by Bill Gulley

Trolling offshore for the channel bass in early spring pays off when charter boats use cut mullet, squid, or even heavy spoons.

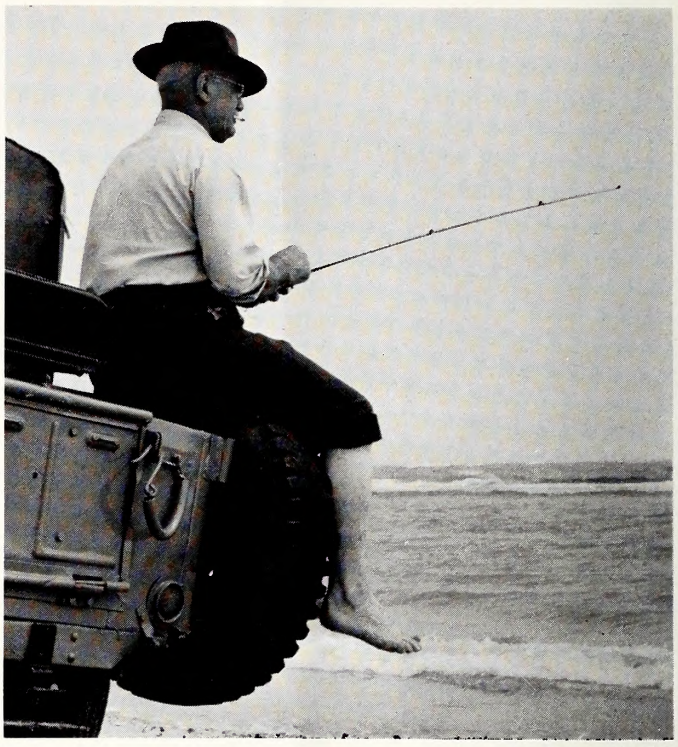


Photo by Jim Lee

Or take it easy, if you will, fishing from the back of a beach buggy which can be driven along the hard sand to a likely spot.

shadow on the water. One might conclude that the big fish are nearsighted, rather than stupid.

There are several methods of taking channel bass, all challenging, and all thrilling. The most popular method, in view of the number of anglers, is surf casting. Modern spinning equipment has made surf casting more popular than ever before; fewer backlashes and greater distance in putting out the lure. Locating the fish is the hardest part of the battle. Wealthy anglers hire small planes to spot schools of bass in the surf and signal their location. An experienced surf caster knows how to "read" the water. By watching the surf he can locate sloughs or troughs running parallel to the beach. It is here that the big coppers come in to feed on mollusks or crustaceans. Although some success may be had with artificial lures such as squidding spoons, most channel bass fishermen prefer cut bait, half a blue crab, or shrimp. A standard fish-finder rig is highly successful. This allows the lead to imbed in the sandy bottom, and the bait to move with the currents and eddies. In feeding, channel bass are slow movers, and they take the bait slowly. Only experience will show when to set the hook and get braced for a real battle. Once hooked, channel bass are not at first highly active. They pull hard, but don't go into violent action until they have been pulled close enough to the shore to realize that they are in danger. Then pandemonium breaks loose. Then is the time for the angler to play his fish carefully and patiently. Many a surf caster has fought his fish onto the beach only to have it take off again with the next breaker, taking lures and line with it.

Patience is important in other ways. When you cast into the surf you can never be certain of just what will take the bait. You can expect croakers, whiting, small blues (all fun to hook) and especially skates. The latter are sluggish fighters, and most anglers consider these flattened sharks a nuisance. There are three essential things to remember in surf casting for channel bass: learn to read the water, fish the incoming tide, and play your fish carefully.

During the spring channel bass run they have been taken in important numbers by trolling. This is especially true at Oregon Inlet in the early spring. The fish apparently stay farther out until the weather warms, and charter boats take them successfully by trolling cut mullet, squid and occasionally with spoons. The fish do not fight with the same vigor in deep water as in the breakers, but big specimens give even a sturdy angler a good workout.

At the same time channel bass are taken from the surf they are available from ocean fishing piers. Most are taken by fishing on the bottom with the

same type of bait used for surf casting. Many pier owners provide long-handled nets to retrieve bass too heavy to be hauled in with the line. Lacking a landing net, the channel bass artist with a sixty pounder on the line will have to fight the fish to a standstill and tow it ashore by walking down the pier. This can be aggravating when there is a good run of fish on, and the pier is crowded with fishermen.

Not many years ago Florida fisherman discovered that channel bass will take flies in the shallow sand flats along the Keys, and the same has been found true in the Texas-Louisiana sand flats. Taking big channel bass on a flyrod requires some supplemental gear. Heavy line and leader is needed, and plenty of backing on the line to take care of long runs. Channel bass are easily spooked, especially in shallow water. For this reason the fisherman must move with extreme caution, and be able to cast his fly to a considerable distance. Being a fisherman, he has acquired some degree of patience; this will come in handy. He may have to spend an hour or more bringing his fish to gaff or net, but he will have been really living during that time.

There is much difference of opinion as to the edibility of channel bass. Some people like them, some do not. When they are salted and smoked over a hickory fire they taste much like smoked salmon. Most of the channel bass caught, especially the big ones, are thrown away. We have seen them stacked up like cordwood at Nags Head and Oregon Inlet in North Carolina. In recent years efforts at channel bass conservation have been made with notable succeess. Commercial and sport fisherman got together to establish size limits and creel limits. Commercial fishermen agree to throw back large specimens that are fit for use only as fertilizer. At the same time sport fishermen restrict their catch of trophy-size fish to two per day. Both groups keep the more numerous smaller fish, since they are edible and of commercial value. Thus far this is true only of North Carolina. To perpetuate this popular game fish, other states may well follow the same plan.

Photo by Jack Dermid

Cape Hatteras is the favorite channel bass fishing area of many ardent anglers. Below the Cape Hatteras Lighthouse, at Cape Point, these fishermen are casting into the churning waters of the junction of northbound and southbound offshore currents.

Photo by Gus Martin

Fishing on the Wildlife Management Areas

North Carolina's cooperative wildlife management areas offer unique opportunity for mountain trout fishing in the protected streams of western forests.

By H. M. Ratledge
Fishery Investigator

WESTERN North Carolina's wildlife management areas offer sportsmen many days of good fishing during the spring and summer months. On these areas, anglers will find some of the best trout fishing that can be had — on accessable streams, open to the public, with a minimum of restrictions.

These areas are managed for wildlife by the Wildlife Resources Commission, in cooperation with the U. S. Forest Service. In the case of two areas, the Wildlife Commission leases the land from private owners. Offering big and small game hunting in the fall and winter, these areas have many miles of cool, clear streams that produce trout for the anglers in spring and summer.

The watersheds are wooded and protected throughout the year. Streams of almost every description may be found in these areas. There are large streams for fly fishermen, small streams at high elevations where native brook trout hide in the riffles, waters set aside for artificial lures only, and waters restricted to women and children only.

Some streams are easily accessable from the roads, while others require considerable walking—and sometimes steep climbs—for the fisherman who seeks back-country angling. Whether you want to catch brook, brown or rainbow trout—or a combination of the three—your kind of fishing can be found in one of the management areas.

The first records of managed trout fishing in these areas show that in 1937 Pisgah and Sherwood combined had slightly over a thousand fishermen. In 1958, the eleven managed areas in western North Carolina had 31,831 fishermen. The table shows the management areas having trout fishing and angler success as indicated by average catch per man and catch per man hour of effort.

Management Area	Number of Fishermen	Average Catch	Catch Per Man Hour
Pisgah	10,324	3.8	0.8
Sherwood	5,294	4.2	1.0
Daniel Boone	4,318	3.8	0.7
Mt. Mitchell	3,655	3.7	0.7
Santeetlah	2,702	5.0	1.2
Standing Indian	2,283	4.4	1.0
South Mountains	964	4.3	0.9
Fires Creek	792	4.4	1.1
Harmon Den	714	3.9	0.7
Rich Laurel	445	5.7	1.1
Total	31,831	4.1	0.85
Wayah	340	4.1	1.2

These eleven areas will be open for trout fishing from the first Saturday in April through the month of August. Fishing is permitted on the majority of the areas during daylight hours on Wednesdays, Saturdays, Sundays and major holidays. A few smaller areas have staggered dates throughout the season.

Required for fishing on the managed areas are valid fishing licenses, including the special mountain trout licenses, and a one-dollar special permit to fish managed streams. Licenses and permits are on sale at checking stations on each area.

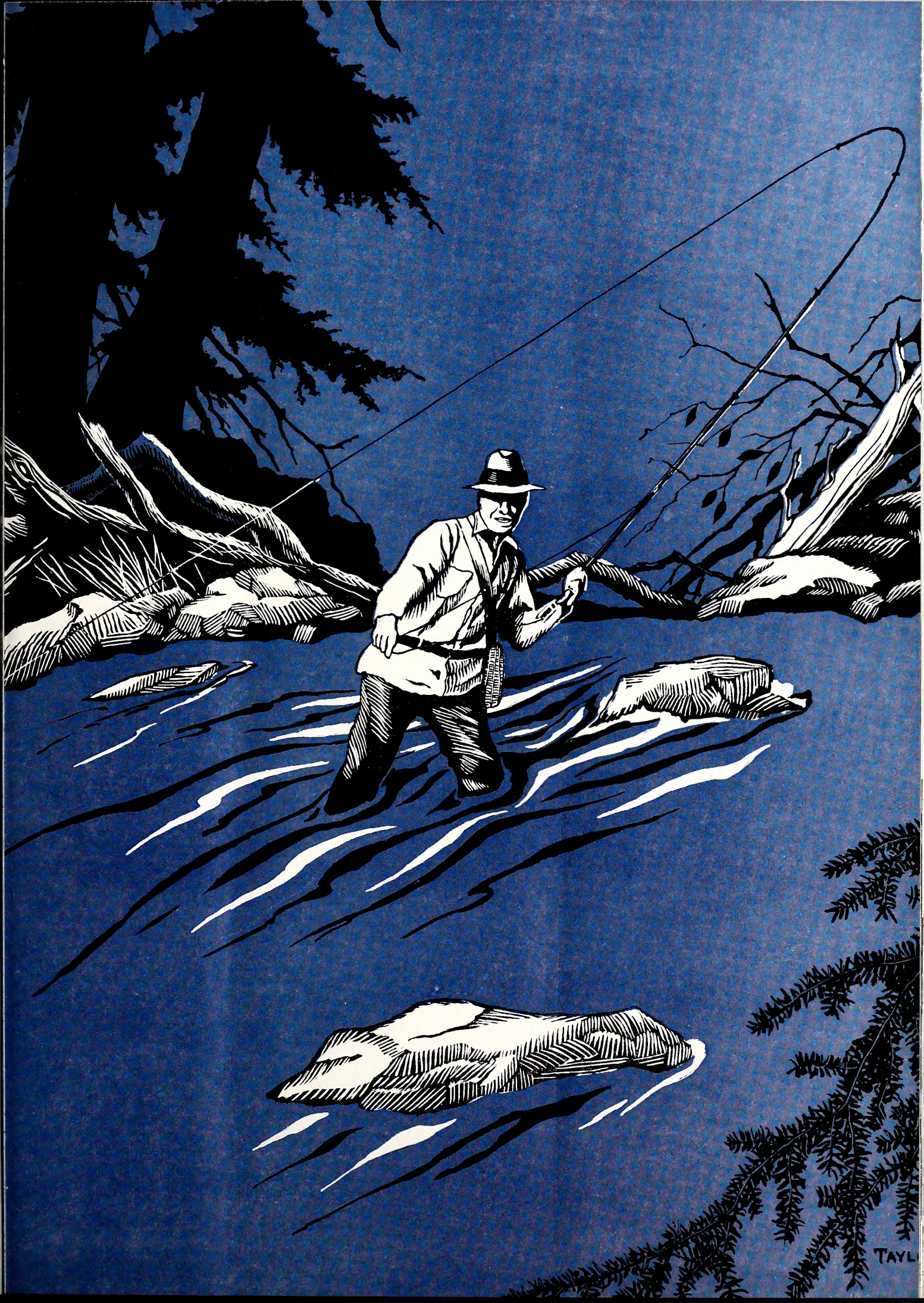
Streams of Special Interest

Artificial lures are permitted in any stream in any management area. At some areas, streams or sections of streams have been set aside specificially for artificial lures only. With the exception of these designated artificial lure waters, the streams may be fished with natural baits as well as artificial lures.

Pisgah: Except for Bent Creek, Lake Powhatan and lower South Mills River, where natural bait may be used, all streams on Pisgah are restricted to artificial lures. Davidson River is famous for large rainbow trout.

Sherwood: The Middle Fork of West Fork of the Pigeon River has been set aside for artificial lures. Brook trout are the most common.

Standing Indian: Fishing is limited to artificial flies below the footbridge on the Nantahala River. This stream is for the perfectionist. Large brown and rainbow trout are present to provide excitement for the fisherman. The upper section of the river


TAYL

and tributaries have beautiful native trout as well as rainbows and browns.

Mt. Mitchell: Neals Creek is nationally famous for its fishing, which is set aside for women and children under twelve. Many miles of unrestricted trout water are available for the whole family to enjoy. All three species of trout are present on the area.

Daniel Boone: Only artificial lures are permitted in Wilson Creek, Steels Creek and a portion of North Harper Creek. Other streams on the area are open to both artificial and natural bait fishing. Linville River Gorge offers a challenge to the hardy fisherman who wants to tangle with a large brown trout; overnight camping is permitting on weekends in the rugged area.

South Mountains: This is the easternmost managed area offering trout fishing; anglers from the Charlotte and Hickory sections can make an easy round trip in one day.

Harmon Den, Rich Laurel and *Wayah* are smaller areas, but provide excellent fishing on their streams.

Two management areas, Dugger Mountain and Thurmond Chatham, are open daily during the trout season and no checking stations have been established. Fishermen are prohibited from these areas from sunset to sunrise.

Facilities for Camping

Camp sites with approved water supplies and other facilities are present on most areas. These camp sites are clean, neat and suitable for family use. The improved camp grounds are maintained by the U. S. Forest Service, and offer vacationers places to bring the whole family.

Checking Stations

Each wildlife management area providing regulated trout fishing has one or more checking stations for the convenience of the public. Attendants sell permits and licenses and record the catch when fishermen check out at the end of the day.

Information obtained at the checking stations is used to provide more and better trout fishing for the sportsman. Information related to migration of trout, seasonal stocking returns and the ratio of hatchery to native trout is obtained at the stations. Thus, the few minutes each fisherman spends at the checking station helps form the basis for one of the best trout management programs in the nation.

Further information on management area trout fishing, including schedules, regulations and location of checking stations may be obtained from Wildlife Commission personnel, or by writing to Fish Division, Wildlife Resources Commission, Box 2919, Raleigh.

N. C. WILDLIFE RESOURCES COMMISSION WESTERN WILDLIFE MANAGEMENT AREAS

FISHERMEN'S CHECKING STATION MAP — 1959

CHECKING STATIONS

* **SANTEETLAH AREA**
1. Barkers Creek Station
2. Big Santeetlah Creek Station

* **FIRES CREEK AREA**
3. Fires Creek Station

* **STANDING INDIAN AREA**
4. White Oak Bottoms Station

* **WAYAH AREA**
5. Wayah Depot Station

* **SHERWOOD AREA**
6. Sunburst Station
7. East Fork Station

* **PISGAH AREA**
8. Davidson River Station
9. North Mills Campground
10. Bent Creek Station
11. Turkey Pen Station

* **RICH LAUREL AREA**
12. Rich Mountain Station
13. Shelton Laurel Station

* **MOUNT MITCHELL AREA**
14. South Toe Station
15. Curtis Creek Station

* **DANIEL BOONE AREA**
16. Fox Camp Station
17. Edgemont Checking Station
18. Kawana Station
19. Linville Falls Station

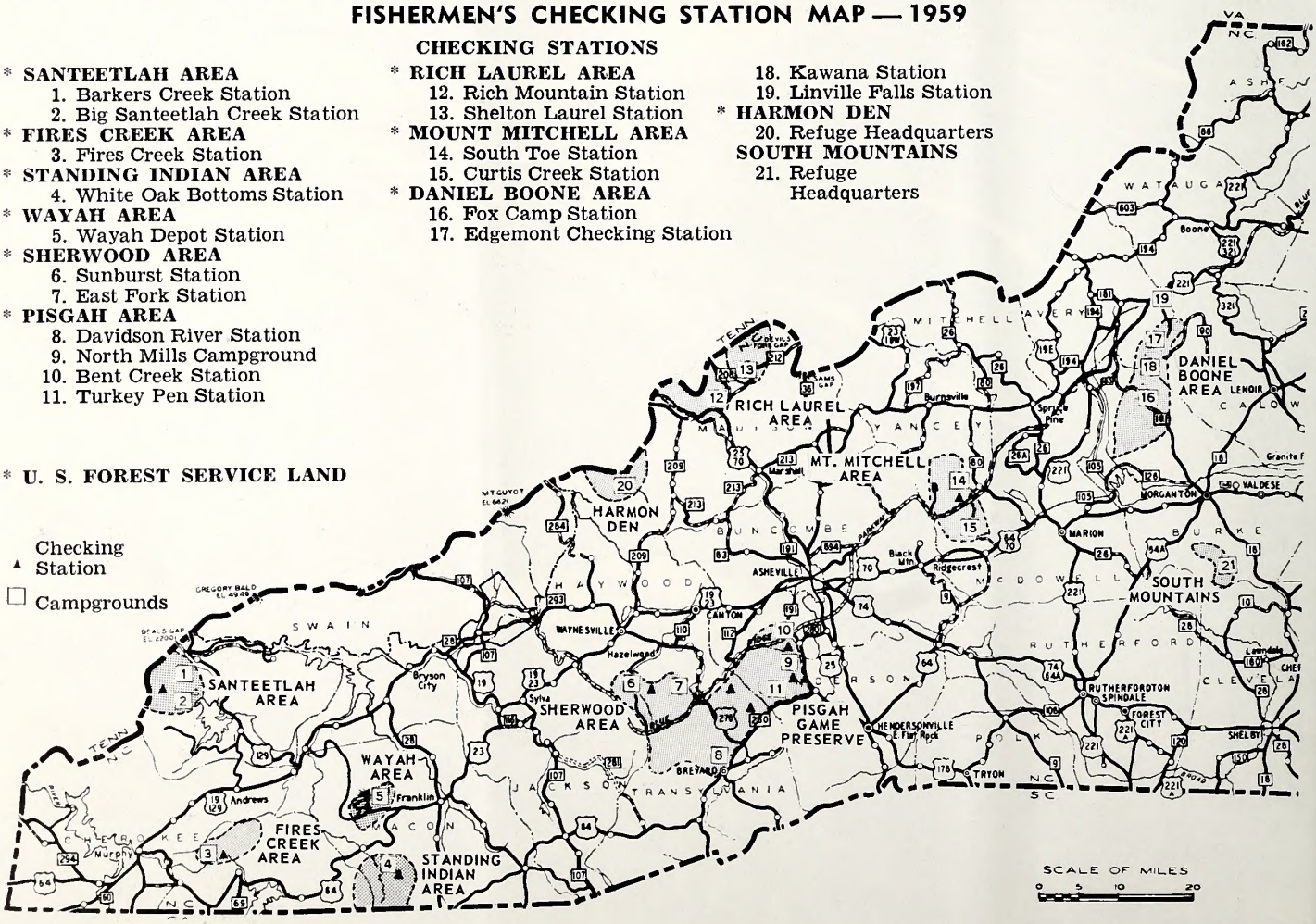
* **HARMON DEN**
20. Refuge Headquarters

SOUTH MOUNTAINS
21. Refuge Headquarters

* **U. S. FOREST SERVICE LAND**

▲ Checking Station

☐ Campgrounds

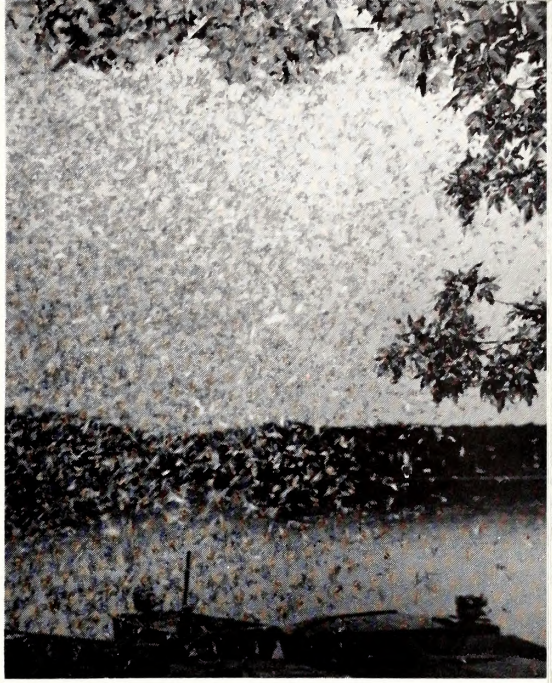


MAY FLY'S

ONE DAY IN THE SUN

Important as a natural fish food, the May fly spends most of its life in the water as a nymph—but for one day emerges as a winged insect to mate and then die.

Nature Short by Jim Lee



ABOVE: Thousands of May flies cling to the leaves or hover around a tree during a hatch at Lake James in the late spring.

ANYONE who has witnessed the emergence of a horde of delicate May flies might well wonder where these millions of insects come from—and where they go as suddenly as they came. Here today and gone tomorrow, the May fly enjoys one day in the sun as an adult, sometimes after three years as an aquatic nymph.

The May fly's life begins as an egg deposited in the water by the female. After hatching, the nymph begins a series of molts as it grows —some species develop through as many as 21 molts.

Some nymphs will burrow in the mud of stream bottoms; others travel with the current. The May fly's food during the nymph stage is largely aquatic plant life.

As a nymph the May fly is extremely vulnerable to fish, and thus the small insect is one of the most important foods for fish.

In the spring, as the water temperature rises, the May fly nymph begins to stir. When the temperature reaches a critical point, the nymph emerges from the water, unfolds its wings, and becomes an adult. Joined by millions of its relatives, the May fly takes to the air for short flights or rests on the grass and twigs near the water.

Adults seldom eat during their brief span of a day; mouth parts are undeveloped. Mating takes place in flight; after this the female places her eggs—five hundred to a thousand—in the water of a lake or stream. And as the new generation begins life, the old May flies die, their day completed.

BELOW: An adult May fly rests on a stalk of grass near the shore of Lake Waccamaw, where spectacular May fly hatches occur.

ADVENTURE IN EDUCATION

Story and Pictures by Jack Dermid

Every spring, fifth-grade students at Greensboro's Ceasar Cone and Lindley schools take to the woods to learn firsthand about conservation and the out-of-doors.

EVERY spring the wilds of William B. Umstead State Park near Raleigh become a gigantic outdoor classroom where eager youngsters learn their lessons from trees, animals, rocks, flowers, streams, gullies, and stars. They learn about conservation and share with their teachers and classmates an experience in living and discovery that will never be forgotten.

In late April and early May, when spring is at its finest, the fifth grades of Greensboro's Ceasar Cone and Lindley elementary schools camp for a week in the rustic cabins overlooking Lake Sycamore. If the ten-year-olds did nothing more than romp in the woods and sing around an evening campfire, it would be a week well spent.

But this is school camp and a carefully planned educational program must be followed. The boys and girls do not mind the full work schedule, though, for every field trip, every class is a new and exciting adventure. Learning suddenly becomes more interesting than playing. For example, on a nature hike conducted by Dr. Hollis Rogers, associate professor of biology at Women's College, a class discovered the dusting place of wild turkeys.

"Every youngster found a feather to wear in his hat," commented Dr. Rogers. "They thrilled at just being where wild turkeys live and felt a closeness to all things wild that they could never have attained in the schoolroom."

The turkey adventure was only one of the many that occur daily as the young naturalists pursue their studies of wildlife, forestry, forest fire prevention, insects, water biology, soil conservation, rocks and minerals, and more. The staff of instructors are highly trained in the natural sciences, many of them college professors or professionals from the Soil Conservation Service, Wildlife Resources Commission, and the North Carolina Divisions of State Parks and Forestry. Equally important, the instructors know how to talk the language of children and how to lead them into opportunities for discovery.

The student's regular teachers are at camp, too, and give additional guidance and inspiration. And Dr. Rogers brings a group of his biology majors from Women's College to serve as camp counselors and to better prepare them for the teaching profession.

Conducted classes are not the only benefits of

Text Continued on Page 16

Harmless snakes and lizards are favorite camp pets and make fine subjects for "Show and Tell," an activity when each camper tells his class about an outdoor discovery he has made.

The age of a pine tree is determined with an increment borer as John Gilliam, State College extension forester, tells the story of trees and of their many values to man and wildlife.

An abandoned rock quarry makes a perfect setting for a class studying rocks and minerals. Here the words of instructor Margaret Wall, Ceasar Cone principal, have greater meaning.

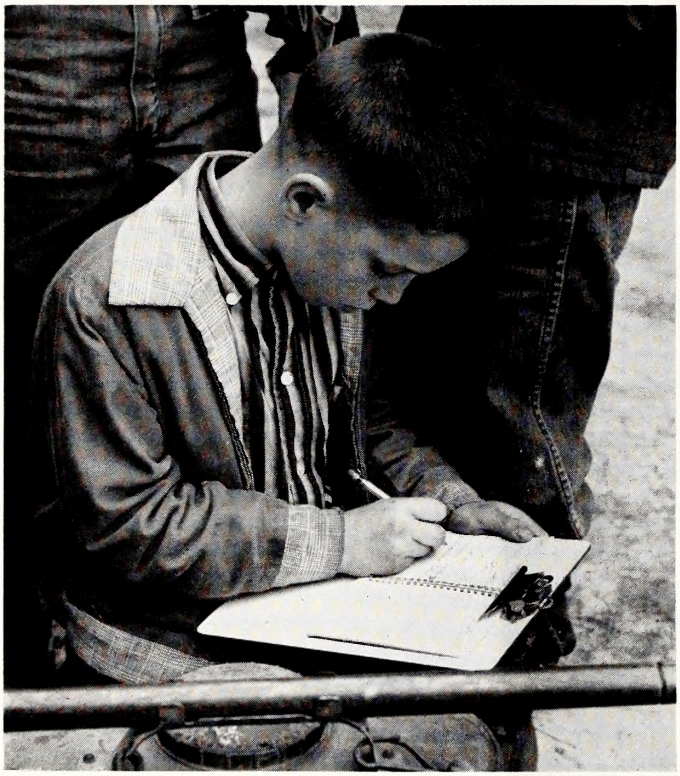
A hike on the nature trail is one of discovery. Here Dr. Hollis Rogers, Woman's College, points out features of dogwood, our state flower. Next stop may be where beaver are felling trees.

Photos Continued Next Page ⟶

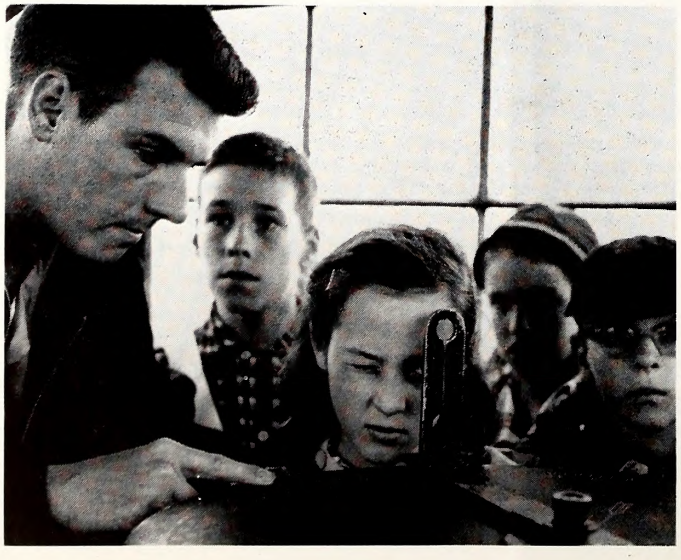
ADVENTURE IN EDUCATION

(Cont.)

Every youngster carries a notebook — his "passport" — for recording observations. On returning to school, he will need it to complete follow-up assignments on things learned at camp.



During a trip to a firetower, rangers G. E. Tilley and C. W. Stoffregen (below) explained the techniques of forest protection. Another fascinating excursion was to the State Museum.



What lives in the bottom of a stream? Fresh-water mussels and all sorts of interesting creatures are discovered in water biology conducted by William Hamnett of the Wildlife Commission.

ss in insect study results in many exciting chases with nsects usually losing the game. In camp, children dis- that there can be both fun and adventure in learning.

Using visual aids, Lunette Barber, Wildlife Commission education representative, correlates wildlife with other renewable resources — the story of the community of living things.

Jars loaded with insects are brought to Dr. H. E. Scott of State College for identification. Insect collecting and study is one of the many nature hobbies encouraged at school camp.

Recreational programs are a part of school camp. This singing session around a campfire was followed by a weiner roast. In the background can be seen one of the cabins where the youngsters fell asleep listening to the songs of owls and whip-poor-wills. Their adventure in education will never be forgotten.

ADVENTURE IN EDUCATION (From Page 12)

school camp. In making their beds, keeping the camp clean, and pulling K. P. duty, the youngsters learn to shoulder responsibilities and work together. Leisure time permits periods of rest, use of the camp nature library, and an opportunity for informal chats with the instructors. Four children are assigned to each small cabin, and in the experience of living together, they discover the meaning of comradeship. A recreational program is held every evening —folk dancing, games, conservation movies, singing—followed by vespers.

"School camp is not a one shot operation where the youngsters are hustled off for a week in the woods and nothing more," Mrs. Margaret Y. Wall, principal of Ceasar Cone school, points out. "Thorough preparatory and follow-up studies enable them to derive all possible benefits from the experience."

Teaching about the out-of-doors begins early for pupils at Ceasar Cone and Lindley schools. In grades one to three, the youngsters are introduced to the world of nature through outdoor study on the school grounds. Fourth grade students have their awareness of living things and conservation intensified by guided hikes on a developed nature trail.

Preparations for school camp begin in the fall for fifth graders, and much of their prescribed course work is correlated with the camping program. Normal fifth grade classwork covers a study of the State of North Carolina—its geography, history, and natural resources—as well as units on Indians, pioneer living, and health education. What courses could be better to correlate with camping?

But that is not all. The students actually prepare menus that will be followed in camp and work out a list of personal objects necessary for clean and healthy living. While studying mathematics, they figure the costs involved in camp operation and the number of servings in a can of beans or stick of butter. In social study, they work out rules of conduct while at camp: mess hall manners, cabin conduct, and manners of the trail. In English, they develop a camp notebook, writing down their schedules, duties, and rules to live by. Here is education in its most practical form.

The principals of the two schools, Mrs. Margaret Wall of Ceasar Cone and Miss Lulu Gilbert of Lindley, serve as camp directors. Theirs is the tremendous job of handling the countless details necessary for a successful camp operation. Instructors have to be invited, transportation arranged, food purchased, cooks selected, and the activities of all concerned coordinated. To cover camp costs, a $12.50 fee is charged for each child, but no youngster is ever left behind because of lack of funds.

The amazing thing about Greensboro's school camping program is that it is voluntary. No child is required to go. In rare cases where parents objected, the boy or girl is simply transferred to another room for the week.

School camp means extra work for teachers, principals, parents, and camp instructors. No one receives extra pay. The camp is held because everybody wants it, from the board of education on down, and all persons involved are as enthusiastic as the children themselves. Parents offer the use of their automobiles, even volunteer to serve as camp cooks and counselors. The good the program accomplishes amply rewards them for their unselfish efforts.

"I don't know of any other program that teaches children to live together and share responsibilities so effectively," says Miss Brytte Heffner, Ceasar Cone teacher. "It is a wonderful opportunity to teach citizenship and an appreciation for America's outdoor heritage."

School camping began in Greensboro elementary schools in October of 1952 when one fifth grade from Lindley school spent a week at Umstead Park. Their teacher, Mrs. Emma Nelson, attended a teacher's workshop on school camping the preceding summer and returned with a determination that her pupils should learn the things she had learned. Miss Ethel McNairy, then principal at Lindley, agreed and served as the first camp director. The first school camp was so successful that parents of the children in Lindley's other fifth grades demanded that their youngsters have the same opportunity.

In 1955, Ceasar Cone school held its first camp, and the program has now become a tradition with the two schools. This spring, Greensboro's Proximity Elementary School plans to take its fifth grades to camp for the first time.

Although school camping is widespread and quite popular on a nationwide basis, Greensboro is the only city in North Carolina with an active program. About 200 pupils from two schools benefited from the experience in 1958. Compare this with California's 1957 totals: 29,000 youngsters from 361 schools! There is definitely room for more Tarheel schools to follow Greensboro's example!

Space does not permit a complete story of the history and current activities of the camping program in Greensboro schools, nor a complete list of all the teachers, individuals, and agencies that have contributed to make it a success. It is a cooperative endeavor that deserves the highest praise.

Every thinking adult can readily see the immediate advantages given the children and the long-range dividends which will be reaped by the people of North Carolina and the Nation.

And as one young camper put it, "You learn more about nature and conservation in a week than during a whole year in school and have more fun than a barrel of monkeys at the same time."

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Record Number Boat and Vacation Shows in 1959

A record number of Tarheels will attend a record number of boat and vacation shows over the state in 1959. First show was in Charlotte in February, followed by the Smithfield show, one in Winston-Salem, another in Burlington, followed by the Raleigh show March 30 - April 4, and the Catawba show at Hickory April 7 - 11. The number of shows and the large attendance reflect the growth of Tarheelia as one of the great outdoor states in America.

Sandhills Lakes Opened to Fishing

Six lakes in the Sandhills Wildlife Management Area in Moore and Richmond counties will be opened to fishing Wednesdays through Sundays weekly from April 1 to October 31. Lake McKinney opened March 1 and daily fishing without permit is allowed. Scotland Lake will open June 3. Free permits are required for all lakes except McKinney so that Wildlife Commission biologists may make a creel census of fish taken from the lakes. A program of rehabilitation and management in these lakes has been carried on over the years by Commission biologists. Complete details on Sandhill Lakes fishing is available from the Wildlife Resources Commission, Box 2919, Raleigh.

Wildlife Planting Materials "Sold Out"

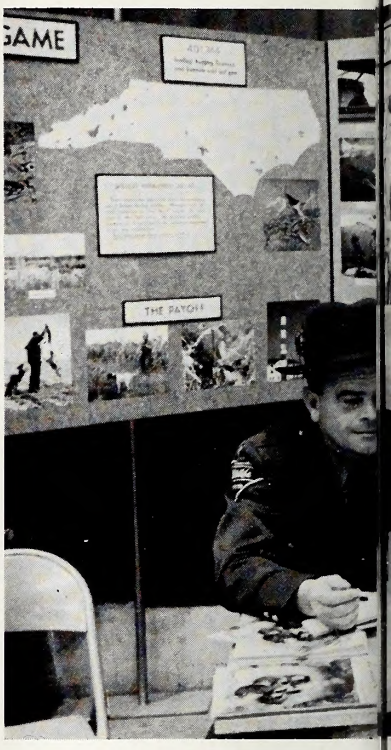
Tarheel farm game should have a place to live and things to eat next fall and winter. During the past planting season the Wildlife Resources Commission distributed the following planting materials for game food and cover:

About 6,000,000 shrub lespedeza seedlings, 3,000,000 multiflora rose seedlings, 35 tons of annual food seed mixtures, 17 tons of sericea lespedeza seed and nine tons of annual lespedeza seed. Translated into food and cover, these materials should improve small game hunting next fall. Last winter's heavy snow proved the worth of such plantings, and probably accounted for the demand for materials exceeding the supply.

National Wildlife Federation Reelects McClamroch, Murphy

Two North Carolinians were reelected to offices in the National Wildlife Federation during the 23rd annual convention held in New York City in early March. Dr. Roland McClamroch of Chapel Hill will continue as vice-president, and Maj. J. L. Murphy of Kill Devil Hills was reelected regional director for West Virginia, Virginia, North Carolina and South Carolina. Both will serve three-year terms. Another North Carolinian, Turner Battle of Rocky Mount, led a panel discussion on water pollution during the session.

North Carolina conservationists were saddened by the death of Mr. E. B. Hampton, Winston-Salem, on March 9. Mr. Hampton was one of the pioneers in North Carolina's wildlife conservation program, and was especially active in work with youth groups throughout the State.



Exhibits on the floor and in the hallways of Charlotte's Coliseum offered the sportsman a variety of boating and fishing equipment displays, along with resort area booths and exhibits from organizations and agencies interested in travel and water sports development.

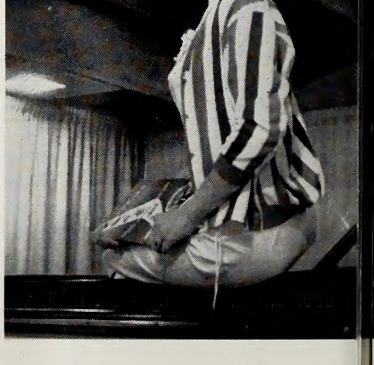
Boat Shows

Thinking about a new boat or motor—or just looking? The boat and sports show season is here again, with displays to bring a gleam to the eye of everyone.

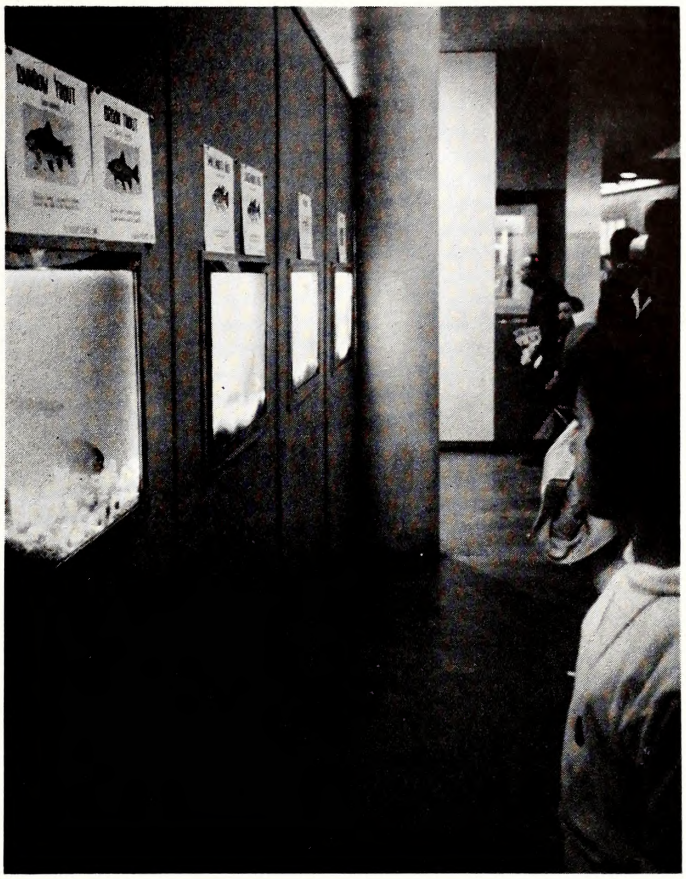
ABOVE: A large tank of water provided a place for youngsters to try fishing equipment. BELOW: Cruisers as well as small fishing craft were shown in the arena.

Smiling Julian Oneto, wearing a pirate costume, advertised the Pirate's Jamboree and sport fishing at Nags Head.

Hostess on one of the cabin cr was Christine Hairr, who greeted pective buyers in her nautical



Wildlife protectors from the area manned the Wildlife Resources Commission's booth at the Charlotte show. The traveling exhibit shows the various activities and wildlife management areas.



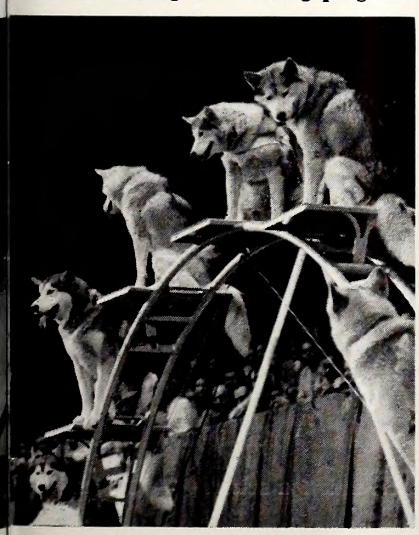
A live fish display, with game fish supplied by the Wildlife Commission, attracted much attention in the lobby of the huge Coliseum. In the exhibit were cold-water and warm-water fish.

re here again!

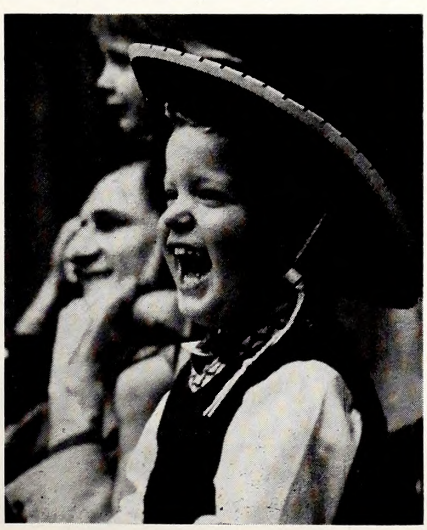
RESPONDING to the tremendous interest being shown in boats and boating equipment, boat shows are becoming annual events in many cities in North Carolina. The scenes on these pages indicate the variety of entertainment and displays at the second annual show in Charlotte, which will be duplicated in Raleigh beginning March 30 and lasting through April 4 at the Reynolds Coliseum.

Other shows were held during February and March at New Bern, Smithfield, Winston-Salem and Burlington. Another show is planned for Hickory beginning April 7. Wildlife Resources Commission traveling exhibits at several of these shows were manned by local wildlife protectors who answered questions on hunting and fishing regulations and accepted subscriptions to *Wildlife* Magazine.

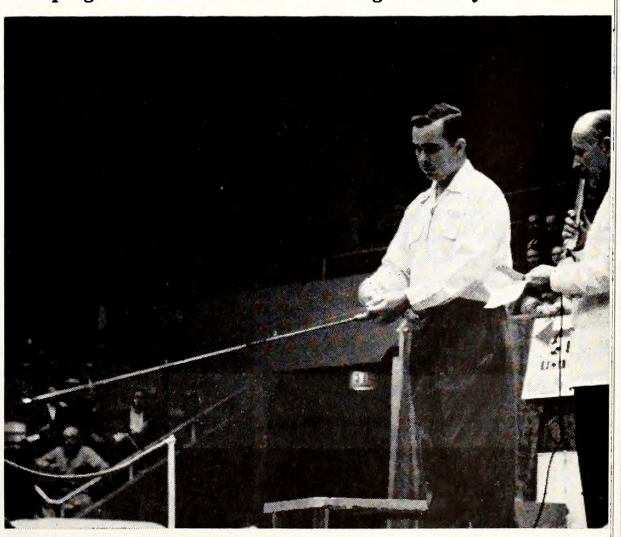
One of the highlights of the entertainment was a team of Siberian huskies who performed during the evening program.

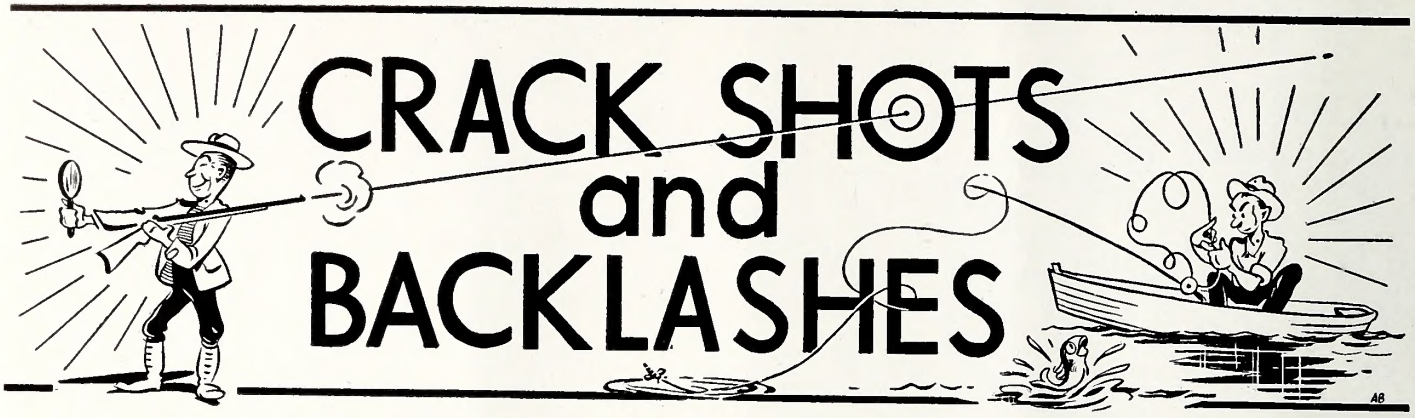


Youngsters of all ages enjoyed the performance. This young man was watching a trained seal in the huge water tank.



Tommy Mitchell of Greensboro demonstrated his skill with a casting rod, placing his practice plug in the water with amazing accuracy.





DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Hunters who are still reminiscing about last season's quail shooting probably recall that on many occasions the birds were wild — getting up beyond gun range and flying into the nearest thicket or swamp. It is possible that quail have changed their behavior pattern somewhat to compensate for environmental changes, but more likely the fault lies with the dogs rather than the birds.

We hear a lot in Tarheelia about birds being hard to find and flushing wild, far ahead of the hunter. This is the time of year when dog training begins, puppies being made ready for the 1959-1960 season. One of the greatest faults in a gun dog is ranging too far and too fast. Better control of a dog will pay dividends in more coveys located and more birds bagged.

HUNTING DOG QUESTION

(Editor's Note: The following column was written by Harold Brand, outdoor editor of the Alton (Ill.) Evening Telegraph. Reprinted from the December 18th issue of that paper.)

Some sportsmen say that it is better to take any kind of dog on a hunting trip than none at all. We have had some sad experiences with wild-running and wide-ranging dogs. We would just as soon find and flush our own game without the benefit of such a dog.

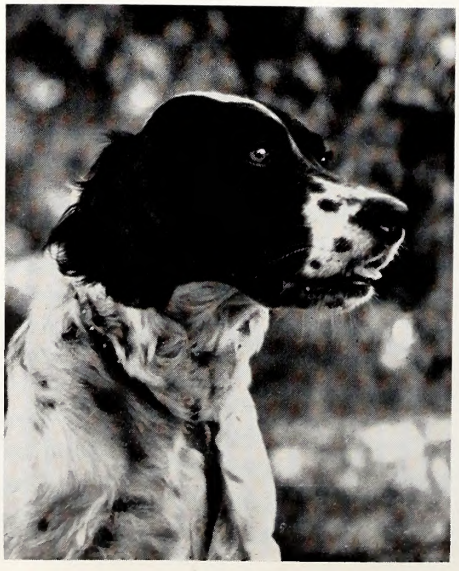
On several recent occasions, we have hunted not just in back of a dog but considerable distance behind. Some pointers and setters ran as much as 50 to 100 yards or more ahead. They were most often disobedient and flushed birds far out of gun range instead of pointing them.

Several of the hunting trips were a virtual waste of time as far as the dogs were concerned. Of all the covies of quail and some singles as well as a few pheasants flushed within gun range, few, if any, could be credited to the dogs.

Owners Shot at Dogs

In contrast, dogs trained for field trials are most useful and fascinating to watch in action. But apparently so much time was and is required to train them, that the o w n e r-handler-trainer probably had little time for other recreations.

Hunting behind such a trained dog is the ultimate in hunting pleasure. We have watched a skilled dog go on point and hold fast until his master and companions approached. After birds were knocked down, the dog carefully brought them back. And in the case of cripples, caught them also. Otherwise, without a dog, the game may have been wasted.



In the same manner, we have followed poorly-trained as well as field-trial-trained beagles. Some of the beagles were so wild and disobedient that their masters shot at them. Fortunately the dogs were only stung. Again, we preferred no dog at all to a wild-running hound.

Not a Meat Hunter

And too, we have remained on stand while trained beagles chased the circling rabbits a good half mile or so away. The rabbits led the beagles by considerable distances but came right back within 30 feet or so of our stand. You can imagine the sport of hunting with such highly trained dogs.

Of course you might accuse us of being a meat hunter, eager to bring home something. That isn't so. We find it is as much fun roaming the countryside on a nippy morning looking for a blur of fur or feathers (which more often than not, startles us out of firing a shot) as when we go fishing all day and get a lot of strikes but no fish.

Fortunately few if any hunters today need to hunt game for their table but go out more for sport and relaxation. It isn't important that they bag the limit in game. What matters is that they are getting out in the fresh air.

We have watched trained retrievers do marvelous jobs of bringing in the ducks. The dogs seemed to enjoy swimming in icy water while their masters remained dry and comfortable. Owners of

all such highly trained dogs have reason to be proud of their hunting helpers.

And we have listened and followed as coon hounds got on the trail of their quarry. They sped across some very rough countryside in pitch dark — through briars, brush, dense woods, hills and hollows. As a matter of fact, on this particular occasion, the going got so rough we abandoned the hunt.

When you are over the hump in years, it is also much more convenient and restful to let the dogs do the work. After we climb a few hills, cross a few creeks, plough through tall weeds and brush for awhile, we get bushed. Then is when we most enjoy letting a highly trained dog do our hunting.

North Carolina Wildlife Federation President Thomas W. Reese, left, of Hickory recently presented to Governor Luther H. Hodges a book containing all the National Wildlife Federation's conservation stamps published during the past ten years.

DEAR SIR: How big a freezer will I have to have to store all that game I am entitled to as per your January issue? C. C. LOVELAND, HENDERSONVILLE.

Frankly, it's sort of like that old English recipe for hare pottage: first, you catch the hare . . .

DEAR SIR: I have been puzzled over a rumor my friend told me. Some people he knew went on a deer hunt and wounded a deer but could not find him. Two weeks later they went hunting again. They killed the deer they had wounded two weeks before. It was said that he had seven bullet holes in him in places that should have killed him.

My question is, would the deer be fit to eat? If not, why? Thank you very much, and I enjoy Wildlife very much. KEITH BASS, SALEMBURG.

DEAR KEITH: Your friend's rumor has us puzzled too. It seems as though the deer might have been shot with a .22 rifle which might have been incapable of making an instant kill. We doubt that a deer severely wounded for a period of two weeks would be palatable. The wound would very likely be infected and the carcass in poor condition.

DEAR SIRS: I would like to know if wild geese have been known to taxi a wounded or killed goose along with the rest of the flock. One of the boys around the store told that when he was a kid he saw his dad shoot a goose on the wing and kill it. The rest of the flock took turns flying under the dead goose and bouncing it up, carried the goose out of sight. SETH A. HILL, WARSAW.

This is an interesting observation, and one that our waterfowl experts say could be true. Maybe some of our readers know of similar observations. Old Grandad said that once he had only one shell and was hungry. He saw two mallards flying down the river and tried to kill them both. He shot between them, knocking the right wing off the left bird, and the left wing off the right bird. But the two locked stubs and flew on down the river. . .

DEAR SIR: I have had an idea knocking around in the back of my mind for some time now concerning deer hunting and I hope that you will allow me to get it off my chest. Trusting that you will see fit to print this in "Crackshots and Backlashes," here goes—my idea is this:

In addition to hunting licenses required for deer hunters, I suggest that each deer hunter be required to buy a deer stamp on a state-wide basis; perhaps similar to the duck stamp that is sold by federal authorities. Money collected from this source should be earmarked especially to provide more feeding areas in state-managed wildlife shelters and also to buy hay for deer during severe or late winter weather. To me it is unthinkable for our deer to be allowed to starve throughout the state because of a lack of food during late winter months.

Would your wildlife club like a distintive bumper tag for its members? This two-color license plate, 5 by 12 inches, is for sale from the Catawba County Wildlife Club with your club name imprinted. Write to 235 16th Avenue NW, Hickory.

PROTECTOR OF THE MONTH

C. B. Spain, Jr.

C. B. Spain, Wildlife Patrolman for District 3, was born in Pitt County, North Carolina on July 6, 1926. The son of Mr. and Mrs. C. B. Spain of Greenville, North Carolina, he attended Belvoir-Falkland High School.

Mr. Spain worked as a special deputy in Pitt County for two years before going to Beaufort County in August of 1950 as wildlife protector of that county. In March of 1952, he was promoted to Wildlife Patrolman and reassigned to Nashville, North Carolina. He has attended three Wildlife Protectors' Training Schools, conducted by the Institute of Government in Chapel Hill, North Carolina. He served two years in the U. S. Navy during World War II, which he spent in the Hawaiian Islands.

Mr. Spain is married to the former Ruth Edwards of Wilson, North Carolina, and they have two sons, Tim and Ted. The Spains attend the Methodist Church in Nashville, North Carolina, where they reside.

ENFORCEMENT RECORD FOR JANUARY

Persons checked	33,548
Total prosecutions	487
Total convictions	461
Total cases not guilty	20
Total cases nol prossed	6
Total fines collected	$5,345.30
Total costs collected	$3,289.17

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is it a violation to "jug fish" in North Carolina?

ANSWER: It is not a violation of the fish laws to use jugs with hook and line attached for catching fish, so long as no live bait is used.

Let me hasten to add that I personally would consider it an honor to be allowed to purchase a "Deer Unlimited" stamp each year and I would like very much to see this a part of the hunting regulations of our state. Deer hunters, give me support, if you feel as I do concerning this matter, by contacting our lawmakers in Raleigh and letting them know how you feel.

Let's also change this law that makes it illegal to shoot a doe. Everyone who hunts deer knows that doe are killed illegally each year in much larger quantities than the general public realizes and left in the woods, wasted. I propose deer hunters be allowed a special permit for a fee, of course, which would permit him to take one deer of either sex per year. This might not stop the senseless waste of edible meat each year, but it would go a long way toward it, and also permit hunters to save face. There wouldn't be as many doe left in the forest to rot, that's for sure. I think that this would also help our deer herds to be healthier and larger by the process of eliminating a portion of those deer who die each year from natural causes. Money derived from this source should also be used, in my opinion, to provide new feeding areas and to sustain the deer during late winter months.

Realizing that the matter is a lot more complicated than it appears to me and also realizing that I'm probably stepping on some of my fellow deer hunters' toes by proposing something like this, I still feel it my obligation to air my opinions, publically, for the good I hope it will do for deer hunters throughout the state.

If we are to have deer hunting in the future, we must look forward now instead of being complacent about the matter.

In my lifetime, I have seen hunting in many areas of the state vanish due to people not being concerned about some of our most valuable resources.

Hoping that this letter makes up in sincerity for what it lacks in clarity, I will give someone else the chance to speak. ANGUS A. BOBO, ASHEBORO.

DEAR MR. BOBO: I appreciate this opportunity to comment on your good letter of January 23 regarding deer hunting.

You will be interested to know that in our opinion there still remains a very considerable acreage of unoccupied deer range in this state which might, if available, be brought under management for big game. A special deer stamp might be one way to provide the funds for such expansion of activity.

The feeding of deer in winter providing "artificial" feed in the form of hay, however, would be contrary to the principles of game management. Scientific game management calls on the one hand, for increasing the natural productivity of the land for game food and cover, and on the other hand for the holding of game populations in sufficient check to prevent them from damaging this "growing stock" of food and cover.

As for shooting of doe deer—professional game managers consider this to be the recommended practice in localities where the herd has been built up to the carrying capacity of the range. Obviously, however, this practice cannot be followed in localities where the herd is still considerably below capacity or where there is still a substantial drain through illegal hunting and killing by stray dogs. Studies in other states have shown that where deer populations are at capacity levels, single sex seasons result in as much or more waste than legal harvest.

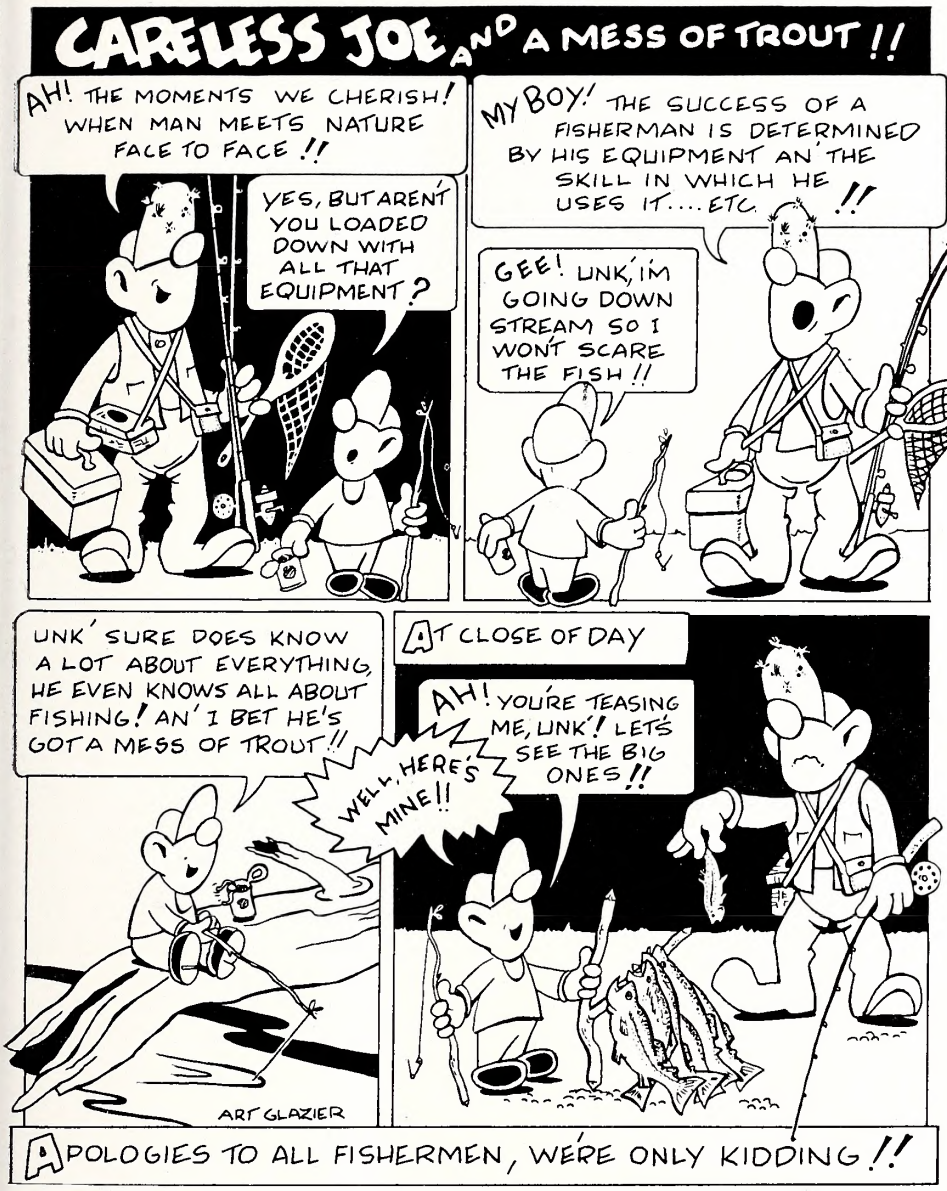
We agree, Mr. Bobo, that there is much room for improvement and growth in our big game program, and constructive proposals such as you have mentioned, may in their proper time, be put into effect. FRANK B. BARICK, CHIEF, GAME DIVISION.

DEAR SIR: I enjoy your magazine very much, both the fishing and hunting articles. I also feel sure a good percentage of your readers are interested in boating. I personally appreciate the launching sites the Wildlife Commission has made available to boating enthusiasts in our western lakes.

With spring not too far away I think it would be a good time for Wildlife to devote a small section to boating, especially rules of the water and a complete list of the various lakes in North Carolina where launching sites are available. GEORGE W. ALLEN, HENDERSONVILLE.

P.S. One of our best lakes in western North Carolina, Glenville, outside of Cashiers, is practically impossible to put a boat of any size in. How about a launching site there?

DEAR MR. ALLEN: We were happy to receive your letter of January 24 commenting favorably on our magazine—**Wildlife in North Carolina.** Your suggestion concerning a section devoted to boating has been passed on to the editorial staff and I understand that an article on boating



safety will soon be completed and may be scheduled for an early summer issue.

Several new access areas have been added since the issuing of the last list of such areas, and it is possible that an up-to-date fishing access area list will be published in an early summer issue of our magazine.

Concerning your question about a possible access area on Glenville Lake near Cashiers, North Carolina, we will ask our district fisheries biologist to investigate the possibility of such an area.

We appreciate your interest in these matters and will take appropriate action on it.

Very truly yours, DUANE F. RAVER, JR., FEDERAL COORDINATOR, FISH DIVISION.

DEAR SIR: When I did not receive the December issue of Wildlife In North Carolina I did not realize what had happened until it suddenly dawned on me that my subscription had expired. Somehow I had misplaced the letter to that effect from your office.

Being very interested in the outdoor life and especially in the preservation of our wildlife resources I think it indispensable to have an educational magazine such as you have. If we are to continue to have hunting and fishing to any degree of success, education on the methods and problems involved is the first step. Having spent three years in North Carolina while attending Duke University, and having done a considerable amount of hunting and fishing there, I do believe that your program is having a great amount of success. While we have a fair program here in Tennessee I do not believe that we are directly attributable to your educational program. The people are not as conscious of their responsibilities and privileges here as they are in North Carolina.

I trust that you will be even more successful in the years to come and that Wildlife In North Carolina will reach more and more people. In it we get so much for so little. REV. KEITH McCORD, KNOXVILLE, TENNESSEE.

DEAR SIR: Many youngsters who have access to farm ponds, and some of us oldsters too, would find much pleasure in having a small boat to use. Furthermore, making such a boat would be an interesting project.

As a suggestion, why not get out sketches and specification notes for a simple boat using commonly available materials. C. C. HOPE, ARDEN.

We appreciate very much having your suggestion with regard to plans for small boats, and we will try to make this material available in a forthcoming issue.

DEAR SIR: I have been taking Wildlife for two years now and have enjoyed every issue.

We have a pheasant hunting reservation near our house, and I am wondering would it be illegal to shoot any birds that come in our yard. I have seen two this week across the road. I was not sure it was legal but knew you could answer me. Thank you very much. MAURICE BASS, SALEMBURG.

Under game regulations, such birds could be shot during the normal open season on pheasants.

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do not take chances in a boat!

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North Carolina State Library
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Wildlife

MAY-1959

TEN CENTS

in north carolina

Photo by Jack Dermid

Nestingtime On The Outer Banks

Thousands of royal terns nest on some of the sandy islands that dot Pamlico Sound, and their compact nesting colonies are spectacles of beauty as the handsome black and white birds hover overhead with their orange bills flashing in the sunlight. On the bare sand, more terns stand like soldiers over their eggs or young, their crests tossing in the wind. May and June are busy months for birds. Everywhere the out-of-doors teems with activity as Mother Nature goes about the annual task of replenishing the land with new life.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

The bobcat, or wildcat, is seldom seen even by people who spend much of their time in the forest. But in the spring, when the rhododendron buds are swelling on the rocky crags of the remote mountains, you might chance upon a female with her young near their den in a cave or hollow tree. Or you might find them with their father, for this parent shares equally in the task of rearing his young. For more information on this interesting cat of the wilderness, see Page 9. Our May cover is a watercolor by artist Bill Ballard of Raleigh.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Through experience, man has learned that a spider's web, an ocean tide, or a stone have a place in the scheme of things.

Man, with his power to build or destroy, occupies a niche in the community of life. He thrives when he lives with nature.

The Web of Life

MAN TAMPERED, THEN DISCOVERED... LIFE ITSELF

By J. Greg Smith

Reprinted from Outdoor America

Photos by Jack Dermid

THE intricacies of a silvery spider's web, the undulating tide of an unresting ocean, the startling brilliance of a bolt of lightning, the quiet calm of a wilderness meadow, the effervescent colors of a piece of stone, the simple beauty of nature's newborn—these things have fascinated man down through the ages.

A stick, a stone, a trickle of water, all hold their mysteries. Eons ago man quizzically studied them. He handled them, felt them, fondled and tasted them. He even salaamed to them at one time or another because he could not completely understand them.

Nor could he understand himself. Why he must kill to eat, roam to drink, or seek out others to perpetuate his kind. The strange beat from within his chest intrigued him, and he often sought still places to listen to its reassuring rhythm.

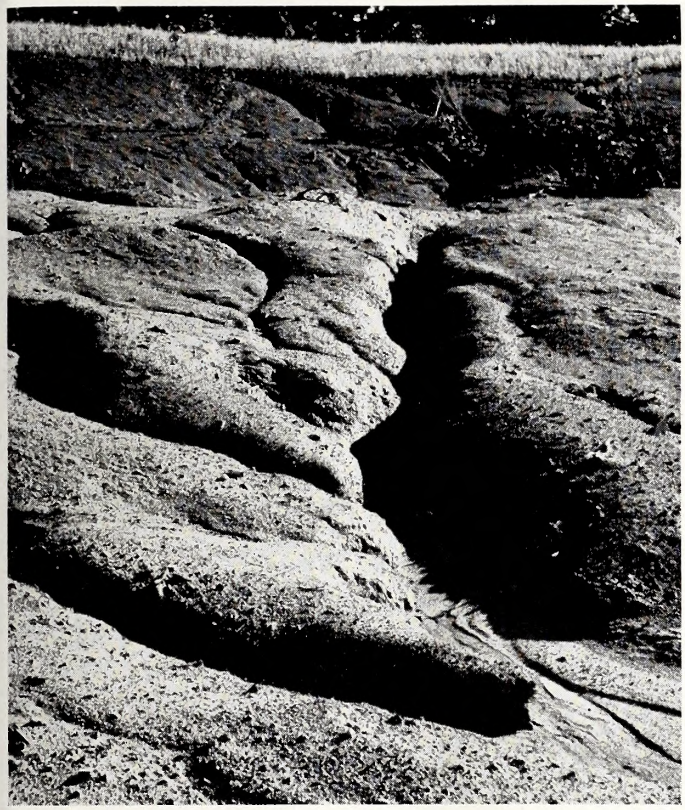
He was a stalker, a hunter, not far removed from the animals he preyed upon. But as winds and water wear away mountains of stone, time wore upon man. He changed, subtly at first, more dramatically as time went by. His quizzical instinct that had tested his senses against the contours of a stone led to discoveries and he began to understand some of the earth's many mysteries. And always—whether he was conscious of it or not—he was discovering life.

He learned that there was p o w e r i n water, strength in fire. He tried to conquer them because he was what he was—man. He tested, remembered, discovered, and learned from others—generation after generation—until he was master of all he surveyed.

Testing caused error, power prompted greed, and as a result what had been curiosity erupted into a destructive force that destroyed many of those things that had fascinated him. He was tampering with life and was consumed by the consequences of his curiosity.

Civilizations gained great heights, then faltered. Wastelands appeared where once there had been verdant green. Stone images, tall temples and artistic columns disappeared under the systematic sands of an earth betrayed. Man had discovered life's power, then destroyed it and in turn destroyed himself. But there were always others, rising to greater heights because they had remembered the errors of the past, then tumbled in dust because they had forgotten them.

The pattern of history has been built on the dust of these errors and each man rises to greater heights than he had before. We are at that point now. Our technicians are far removed from those who quizzically studied the contours of a stone. They are still tampering, however, using the knowledge of those who had gone before and applying their own advanced thinking to discover more of the earth's secrets. Some have learned from the experience of the past to respect the powers they are dealing with, knowing that what might seem



But when man tampers with natural laws, he plays with destiny, and an earth betrayed weaves an ugly pattern of destruction.

dormant may mushroom into a cloud of destruction. Some haven't learned.

A word was born some fifty years ago and was given meaning when man surveyed the damage he had caused. A word was born that became a conscience for those who had not learned. A word was born that meant life, that showed respect and gave dignity to the modern image of the free roaming predators of ages past. That word—conservation—became a cause.

Those who have come to live by its principles know what it means to reflect on the past, inquire about the present, and contemplate the future. They know that a spider's web, the tides of an ocean, a bolt of lightning, and an effervescent stone all have their place in the scheme of things. They know that man is only a part of this pattern. They know that man must often seek out those quiet places as he has done through the centuries, to listen to the reassuring rhythm of life that pounds within and around him.

Man must ever have the chance to discover what would seem to some very simple and basic facts. Discovery gives his life meaning, gives him humility and affords him a conscience. This cause wasn't born fifty years ago. It has been with us throughout time, lying latent or possibly camouflaged because it was called something else. Conservation is life. Conservation is respect. Conservation is reverence. And, if there is a cause, it is only to remind us of these facts.

Public HEARINGS

● HEARINGS ON PROPOSED 1959-1960 HUNTING REGULATIONS WILL BE HELD IN EACH OF THE NINE WILDLIFE COMMISSION DISTRICTS IN MAY.

DATE	DISTRICT	TOWN
MAY 19	9	SYLVA
MAY 20	8	MORGANTON
MAY 21	7	DOBSON
MAY 22	6	ALBEMARLE
MAY 25	5	GRAHAM
MAY 26	4	ELIZABETHTOWN
MAY 27	3	ROCKY MOUNT
MAY 28	2	NEW BERN
MAY 29	1	EDENTON

All meetings start at 7:30 p.m., and will be held in the county courthouse except at Rocky Mount, where the hearing will be held in the city court room.

● THE WILDLIFE RESOURCES COMMISSION WANTS YOUR OPINIONS AND RECOMMENDATIONS. YOUR DISTRICT HEARING IS YOUR OPPORTUNITY TO BE HEARD.

Photo by Jack Dermid

Buggs Island Dam, impounding vast Kerr Reservoir, was built several years ago on the Roanoke River. After a gradual decline in fishing success, the spotlight is again pointed at the lake.

LANDLOCKED DYNAMITE

By Rod Amundson

LATE in the summer of 1953 a worm fisherman at Kerr Reservior caught a small, silvery fish with dark stripes along the sides. He wondered what it was. He did not realize that he was holding in his hands the answer to a debate of long standing and the forerunner of a fabulous sport fishery. He had caught a game fish whose ancestors have consistently topped the scales in the seventy-pound class along the Atlantic coast.

This summer—or tomorrow—you can toss a bait into the water of Kerr Reservior and expect to tie into nine or ten pounds of striped dynamite. After years of speculation, experiment, common sense fish management and faith, striped bass, or rockfish, have been successfully introduced, spawned, and landlocked. For the first time it can be stated conclusively that striped bass can spend their entire life span in fresh water. Santee Cooper Reser-

voir in South Carolina has been widely renowned for a number of years for its fabulous rockfish fishery, but because of a series of locks allowing coastal vessels to go into the reservoir, there has been some doubt that the Santee stripers were definitely landlocked. Spawning stripers could have come through the locks with boats.

In 1953 the Wildlife Resources Commission put a million rockfish fry into Kerr Reservior. These were taken from the Weldon striped bass hatchery. Another million were stocked in 1954 and a third million in 1955. No young stripers were stocked in 1956 or since then. The reason for this was that by 1956 the fingerlings stocked in 1953 should have been old enough to spawn, and lake-spawned fry would have been indistinguishable from fry brought in from Weldon.

This is one of the biggest wildlife news stories of the year—striped bass, or rockfish, have been definitely landlocked in huge Kerr Reservoir. This year, anglers will bring home some whoppers, and next year they will be even bigger. As the result of several years of study we now have the popular game fish established and spawning—and the food is there to feed them. But before raising your hopes too high, read this article closely—a serious threat to the future of this fishery looms as a private power company bids for a license to construct a dam at the spawning area on the Staunton River above the lake in Virginia.

The 1953 fry were old enough to spawn in 1955, and did. Bank fishermen using worms caught small, silvery fish and wondered what they were. Biologists took small stripers in their nets, and have found newly-hatched fry each year since 1955—definite proof that introduced fish had matured and spawned successfully.

Striped bass consume tremendous quantities of food, and this intake of food is reflected in their rapid rate of growth. Largemouth bass under ideal conditions gain a pound per year. Rockfish in Kerr Reservior enlarge at the rate of two pound per year. Thus, this summer, or tomorrow, you can reasonably expect to tie into a ten-or twelve-pound tackle buster that was half an inch long back in 1953.

Give these fish a few more years and salt water fishing tackle will be commonplace on Kerr Reservoir. Stripers weighing over seventy pounds are not uncommon in the ocean. How big the landlocked fish will grow is anybody's guess and any angler's fervent prayer. Last summer rockfish weighing from two to nine pounds or more were taken with encouraging regularity by Kerr Reservoir anglers. The larger specimens could be fish or the offspring of fish trapped in the reservior when it was first impounded. This summer they will be

Photo by Bill Dennis, Henderson Dispatch

A string of mixed game fish, including several striped bass or rockfish, indicates the success of many anglers last year. Now we may expect more successful outings with even larger fish.

These two stripers show what may be expected soon from the reservoir. The scrappy rockfish has long been a prize delicacy on table, ranking among the very top game fish used for food.

Photo by Jim Lee

a year older and a pound or two bigger. But before we become too optimistic, let's face some realistic problems confronting our landlocked striped bass fishery, and throw some cold water on the over-optimistic idea of having landlocked rockfish in every lake or reservoir in the state.

First, striped bass by nature are anadramous; they spend their lives in salt water, coming into fresh water solely for spawning. Further, they are highly selective in their spawning requirements. To get a reasonable percentage of eggs fertilized, the spawning must occur in swift running rapids. The Kerr Reservoir rockfish fishery will depend entirely on a stretch of rapids on the Staunton River in Virginia forty miles above the reservoir, near Brookneal. It is in these rapids that Kerr Reservoir stripers have spawned successfully.

But here is the joker in the deck. A private power company (Appalachian Power and Light) plans to build a dam just above these rapids. Unless the license to build the dam requires the company to provide suitable constant water flows during the spawning season you can mark off your chances of an important landlocked striped bass fishery. Too little water in the rapids would leave eggs and adult fish stranded. Too much would destroy the turbulent effect necessary to successful spawning.

Thus far Virginia conservation authorities have had little success in getting a promise of adequate water flows from the proposed dam, and a potentially fabulous sport fishery hangs under a Damoclean sword. Enough public and congressional pressure brought to bear from both Virginia and North Carolina sportsmen and officials might at least dull the sword, if not shatter it.

As mentioned above, rockfish are gluttons for other fish. Although the fry feed on plankton, small insects and other tiny water creatures, growing stripers soon develop an appetite for other fish. Biologists believe that there is little danger that rockfish will destroy the populations of such other game species as bass and bream, but they know that the stripers must have abundant quantities of forage fish to grow fast, fat, and sassy. To provide food for the already rapidly developing rockfish population, the Wildlife Resources Commission is stocking Kerr Reservoir with threadfin shad. These are fast-growing and highly prolific. They reach a maximum size of about four inches—ideal for the stripers' menu—and there is little or no danger of their becoming overabundant as did the gizard shad, notably in Lake James. Threadfin shad are indigenous to the warmer waters of the South, and Kerr Reservoir is north of their optimum range. Fish biologists will be more concerned with restocking threadfin after periods of severe cold weather than they will in keeping the population of this forage species within reasonable bounds.

Editor's Note: Although Kerr Reservoir stripers have been taken successfully on white bucktail jigs with 03 hooks, black bombers, and other lures, we know very little about the techniques of Kerr striper fishing. We would appreciate hearing from readers who take striped bass successfully this summer.

These rapids, on the Staunton River near Brookneal, Virginia hold the key to the future of natural striped bass spawning in Kerr Reservoir. Here, at the only suitable spawning area for rockfish, a private power company seeks to impound the river for hydroelectric production. Unless the license issued to the power company requires constant flows during the spawning season, a landlocked fishery in the reservoir below may be impossible. Unregulated flows would allow too little or too much water for successful rockfish spawning.

Photo by Malcolm G. Edwards

Glowering fiercely, this bobcat stands ready to defend his den in a wild area of a western North Carolina forest. Where once the wildcat roamed most of the state, the inroads of civilization have pushed him back to only a few remote wilderness areas.

VANISHING AMERICAN

Although the bobcat once was found over most of North Carolina, now the big cat is becoming a scarce animal.

ASIDE from man and dogs, the bobcat, or wildcat, has practically no natural enemies. Yet he is becoming a rare animal as civilization presses him further and further back into wilderness areas. Once present in considerable numbers in all sections of North Carolina, the big cat is now found only in inaccessible forests, swamps, and pocosins.

The wildcat is a predator who lives by his skill and cunning—and takes as his food many small rodents and old and sick game animals. At times he has been known to take even fawns, particularly where deer production is high. Other prey includes rabbit, squirrel, coon and possum.

Fortunately bobcat populations are seldom high enough to pose a problem. On wildlife management areas, where hunting and stray dogs are closely controlled, trapping of bobcat is sometimes necessary to keep the cat in check, and elsewhere in the state no closed seasons protect the animal from hunting. Few hunters seek the wily wildcat, rugged terrain discourages most hunters.

Timber-cutting and forest fires have changed the old habitat of the bobcat; as civilization progresses we can expect fewer places where he can remain undisturbed—but as long as there are remote forests there will be a few of the vanishing Americans.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Public Hearings Set for 1959-1960 Hunting Regulations

The Wildlife Resources Commission will hold a series of nine public hearings to give hunters an opportunity to discuss their views wth regard to the proposed 1959-1960 hunting regulations. In addition to the regular hunting season the Commission will discuss proposed changes in managed hunts on wildlife management areas and special antlerless deer hunts. Persons interested in hunting on management areas should make an effort to attend one of the hearings. See page 5 for a list of the dates and locations of hearings.

Sunday Fishing Confusion Clarified

Several thousands of Tarheel anglers were worried recently when they thought that by wetting a hook on Sunday they were violating a law with a penalty of a two to five hundred dollar fine and thirty days in jail. Confusion arose when Representative Whitehurst of Craven County introduced legislation making Sunday net fishing legal in that county and reducing the penalty for Sunday net fishing in inland waters to a maximum of fifty dollars instead of five hundred. When the House Wildlife Committee's action on the bill was reported in the press word "net" was omitted. There is no law against hook and line fishing on Sundays.

Fishing Prospects Bright for 1959

According to the Sports Fishing Institute fishing prospects appear bright for 1959, barring the bugaboos of bad weather and floods. Better management methods, the addition of new waters, liberalized regulations and improved tackle and angling techniques all point to a shorter time between bites this season. Tarheel anglers will spend about $56,000,000 in pursuit of their sport.

Mackeys Island National Wildlife Refuge Acquired

Under provisions of the new duck stamp regulations, under which the federal waterfowl hunting license cost was raised a dollar with revenue earmarked for land acquisition, a 7,856-acre national waterfowl refuge has been approved for Mackeys Island in extreme northeastern North Carolina. Purchase and development will be in cooperation with the Wildlife Resources Commission.

Wildlife Scholarships Available from N. C. Wildlife Federation

Two scholarships of $250.00 each have been made available to beginning wildlife management students at North Carolina State College for the coming school year. Funds were provided by the N. C. Wildlife Feleration. Details may be obtained from Dr. Fred S. Barkalow, State College, Raleigh.

Rocky Branch Access Area Opened

Favorable weather hastened the opening of the new Rocky Branch Fishing Access Area on Nantahala Reservoir so that the forty-fourth Wildlife Commission fishing facility was opened in late April. It is located on the Wayah Bald Road along the eastern side of the lake, potentially one of the State's best fishing areas. Difficult access has kept anglers away previously.

Fishing Access Areas

Save this list of the 43 public fishing access areas open for use in 1959—they are your gateways to fishing in some of North Carolina's very best water.

FORTY-THREE public fishing access areas are now open to North Carolina anglers, providing better fishing opportunity from east of Manteo to west of Murphy. The story of the development of public access closely parallels the current boom in boating, since during the time the Wildlife Commission has been building access areas the number of boats and boating enthusiasts has mushroomed tremendously in North Carolina.

The Commission's first area was built on the Roanoke River at Weldon in 1952, on land leased to the Commission by the Town of Weldon. Striped bass fishermen were finding it difficult if not impossible to launch their boats down the steep banks of the fluctuating river, and the launching ramp built by fishing license money made it easy for them to reach the water at any stage of the river.

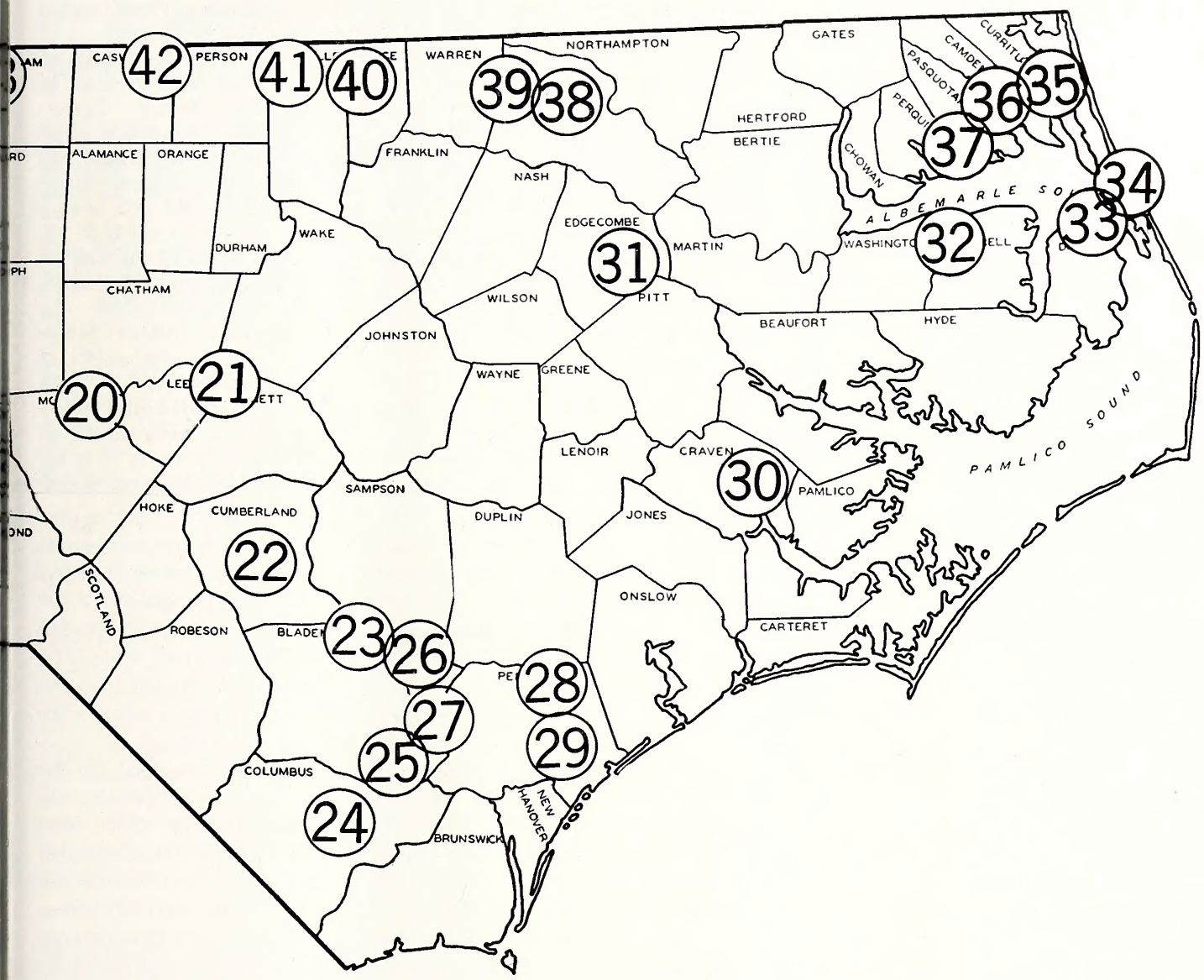
The successful Weldon project was soon followed by another popular area, located at Lake Waccamaw. Where steep banks made it difficult to reach the water at Weldon, rapid development of home and summer cottage sites at the popular lake resort made it apparent that soon fishermen would not be able to reach public water because of private property restrictions. Realizing that private property owners were under no obligation to allow fishermen to cross their lands with boats and trailers, the Commission stepped in and purchased a cottage site for development as an access area.

●——————See ACCESS Page 14

North Carolina Wildlife Resources Commission

Fishing Access Areas

1. HIWASSEE RESERVIOR (Grape Creek) turn north off U.S. 19-129 at square in Murphy. Follow main road approx. 8 miles.
2. CHATUGE RESERVOIR (Ledford's Chapel) approx. 4 miles east of Hayesville on U.S. 64. Turn south on gravel road at Ledford's Chapel and drive to end.
3. NANTAHALA RESERVOIR (Choga Creek) turn south off U.S. 19-129 at eastern city limits of Andrews. Drive 5 miles and turn right on Choga Creek (Forest Service) road. Drive 2 miles to left turn, 1 mile to area.
4. LAKE JAMES (Canal Bridge) from U.S. 70 turn north 5 miles east of Marion onto N.C. 126; follow this across dam into Burke Co.—area between dam and canal bridge.
5. LAKE JAMES (McDowell Wildlife Club) from U.S. 70 turn north 5 miles east of Marion onto N.C. 126; follow for 1 mile, turn left on dirt road for 0.7 mile, turn right 0.6 mile to area.
6. LAKE JAMES (Linville River) from U.S. 70 turn north 5 miles east of Marion onto N.C. 126 for 11.8 miles.
7. LAKE JAMES (Mimosa Fishing Club) turn north off U.S. 70 at Glen Alpine, cross railroad overpass, turn left and approx. 6.0 miles to area.
8. LAKE RHODHISS (John's River) follow N.C. 18 approx. 3.0 miles north of Morganton to second concrete bridge.
9. LAKE RHODHISS (Castle Bridge) turn north off U.S. 64-70 approx. 3.0 miles east of Valdese; cross bridge into Caldwell Co., area is on right.
10. LAKE HICKORY (Lonesome Pine) follow U.S. 321 north from Hickory 1.0 mile past city limits to 12th street; turn right 1.3 miles to area.
11. LOOKOUT SHOALS — turn north from U.S. 64-70 at Claremont and drive 5.0 miles; turn right on Oxford School road about 1.0 mile to sign on left to area.
12. MOUNTAIN ISLAND LAKE (Davidson Creek) follow N.C. 16 nine miles northwest from Charlotte, turn east at Shuffletown, follow paved road east 4.4 miles to intersection, turn left 3.0 miles to intersection, turn left 0.8 mile to dirt road left, then on to area.
13. MOUNTAIN ISLAND LAKE (Lucia) follow paved road 2.0 miles east from Lucia.
14. MOUNTAIN ISLAND LAKE (Highway 16 Bridge) twelve



miles northwest from Chorlotte on N.C. 16, west end of bridge.

15. CATAWBA LAKE (Withers Bridge) from Chorlotte follow N.C. 49 to Shopton, turn left on poved rood 0.9 mile to poved rood right, follow 3.2 miles to dirt rood right, to oreo.
16. HIGH ROCK LAKE (Dutch Second Creek) from Solisbury turn south on Bringle Ferry Road, opprox. 10.0 miles to oreo.
17. LAKE TILLERY (Swift Islond) follow N.C. 27-73 south opprox. 10.0 miles from Albemorle to oreo.
18. LITTLE RIVER (Troy) turn south ot Courthouse in Troy, follow paved rood 4.0 miles to oreo.
19. PEE DEE RIVER (Highwoy 109 Bridge) ot river bridge on N.C. 109 approx. 10.0 miles north of Wadesboro.
20. DEEP RIVER (Corbonton) follow dirt rood south from Corbonton 1.0 mile to areo.
21. CAPE FEAR RIVER (Avents Ferry Bridge) turn south off U.S. 1 one mile eost of Moncure; follow road 6.0 miles, turn right 1.0 mile to oreo.
22. CAPE FEAR RIVER (Foyetteville) follow N.C. 87 four miles south from Foyetteville to oreo on left.
23. SOUTH RIVER (Gorlond) 2.0 miles south of Gorlond on U.S. 701 to oreo.
24. LAKE WACCAMAW — from Loke Woccomaw (town) go to loke, turn right 1.0 mile to oreo.
25. CAPE FEAR RIVER (Elwell's Ferry) 3.0 miles north from N.C. 87 ot Corvers on poved rood to areo.
26. BLACK RIVER (Gale Horrison Troct) 8.0 miles south from Horrells to Ivonhoe ond oreo.
27. BLACK RIVER (Hunt's Bluff) turn south off N.C. 53 on dirt rood ot Block River Bridge 10.0 miles west of Atkinson; 1.0 mile to oreo.
28. NORTHEAST RIVER (Holly Shelter Refuge) turn south off N.C. 53 ten miles east of Burgow, follow dirt rood 6.0 miles to oreo on right. (No guns and/or dogs ollowed on orea).
29. SHELTER CREEK — turn south off N.C. 53 ten miles eost of Burgaw, follow dirt rood 1.0 mile to area on left.
30. NEUSE RIVER (New Bern) from Bridgeton follow U.S. 17 north opprox. 3.0 miles to dirt road left; follow this rood to intersection, turn left to areo.

31. **TAR RIVER (Old Sporto) On N.C. 42 ot river bridge east of Old Sporto.**
32. **SCUPPERNONG RIVER (Columbio) 1.0 mile west of Columbio on U.S. 64 turn north at sign to Scuppernong River.**
33. **EAST LAKE (Moshoes) 3.0 miles north of Monn's Horbor on dirt rood, turn left ot sign to oreo.**
34. **COLLINGTON BAY (Avolon Beoch) turn west off U.S. 158 ot Avolon Beoch on paved rood, 0.5 mile to oreo.**
35. **INLAND WATERWAY (Coinjock) turn north off U.S. 158 at Coinjock on poved rood ot eost end of drowbridge, oprox. 1.0 mile to areo.**
36. **PASQUOTANK RIVER (Chontilly) turn south off U.S. 158 four miles east of Elizobeth City on N.C. 343 for opprox. 1.0 mile, turn right approx. 3.0 miles to orea.**
37. **LITTLE RIVER (Holls Creek) follow U.S. 17, eight miles south from Elizobeth City to poved rood to southeast, turn southeost on paved road, 3.0 miles to oreo.**
38. **ROANOKE RIVER (Weldon) At Striped Boss Hotchery, Weldon.**
39. **ROANOKE RAPIDS RESERVOIR(Thelmo) turn north 5.5 miles eost of Littleton off U.S. 158 to Thelmo, then on to orea.**
40. **KERR RESERVOIR (Nutbush Creek) from U.S. 1 north of Henderson, follow Sotterwhite's Point rood 5.0 miles to dirt rood left, follow this rood 1.0 mile to oreo.**
41. **KERR RESERVIOR (Grossy Creek) turn west off U.S. 15, one mile north of Bullock on dirt rood, opprox. 5.0 miles to orea on right.**
42. **DAN RIVER (Milton) follow N.C. 62 one mile north to oreo ocross bridge.**
43. **DAN RIVER (Leoksville) follow N.C. 14 one mile south of Leoksville city limits to orea.**

ACCESS

Continued from Page 11

Soon fishing access areas were being built in every section of the state. A launching ramp, parking area, and location signs meant that the fisherman could put his boat in the water and leave his car and trailer for the day.

Several types of situations made the development of public access areas necessary. Inaccessible water, such as the Roanoke River at Weldon, made many of the areas desirable investments of the fisherman's money. Fluctuating water is not limited to rivers; on many of the power reservoirs of major river systems the water goes up and down with demands for hydroelectric power, and existing facilities were few. At other locations private property owners were enclosing the water, and the Commission has taken action where such developments threatened to exclude the general public.

The access area program was given a tremendous boost in 1953 when Duke Power Company offered several areas on reservoirs of the Catawba chain. The power company provided rough grading on their land with the Commission adding gravel and location signs. Currently open by cooperative agreement with Duke Power Company are four areas on Lake James, two on Rhodhiss, one on Hickory, one on Lookout Shoals, three on Mountain Island Lake, and one on Catawba Lake.

Where possible and feasible, the Commission buys land for access areas. At other locations property must be leased, and here the Commission obtains leases for long periods. At still other areas, licenses are obtained which assure that funds for construction may be safely spent. Areas built under licenses include those on lands belonging to Babcock Lumber Company, Carolina Aluminum Company, Carolina Power and Light Company, the U. S. Army Corps of Engineers, the U. S. Forest Service, and the Kerr Reservoir Development Commission.

During the period since the beginning of the program, boating has been the fastest-growing sport in America. According to the Outboard Boating Club North Carolinians last year purchased 8,400 new outboard motors, making an estimated total in use of 78,000 in the Tarheel State. Boat launching facilities for this horde of boats that splash into the water every weekend are still limited, even with the 43 areas provided by the Commission.

Demand for launching facilities resulted in the Commission being forced in 1958 to restrict the use of Commission-developed areas to only those boat operators who share in the cost of building and maintaining the areas. A Commission regulation now requires that users of these fishing access areas have either a valid fishing license or an access area use-permit—thus giving assurance that those who use the facilities help pay for them.

A dozen or more areas are pending development. A new area on Nantahala Lake, to be located next to the Wayah Bald Road, will open this relatively un-exploited lake to many more fishermen. This area is now under construction. Other areas are awaiting purchase or long-term agreement, and the availability of funds for development.

As the number of boats continues to increase, the need for more access areas will follow. With a large segment of America moving outdoors during the summer months, and new and better highways carrying more and more people to lakes and streams for a day on the water, the Commission must look into the future. By studying applications for Federal Power Commission licenses to construct new reservoirs, the Wildlife Commission anticipates problems of access before they occur. The license recently granted to Duke Power Company for Cowan's Ford guarantees ten areas and at least one hundred acres of parking—and you can bet that when the reservoir is filled, there will be enough boaters to require a hundred acres of parking.

GAME AND FISH DIVISIONS MAKE PROMOTIONS

SEVERAL veteran field men have been promoted recently in the Game and Fish divisions, and others have been transferred to positions of new responsibility.

Ted R. Mitchell, district game biologist in District 7 for several years, has been appointed refuge supervisor for central North Carolina wildlife management areas. The addition of the new 14,000-acre Caswell area has made it necessary to provide field supervision for the areas. Included in the central areas are Caswell, Uwharrie and Sandhills areas and the Lexington Field Trial Area.

In addition to supervising the game management practices on the areas, Mitchell will coordinate field trial activities on all Commission-owned areas and will provide technical assistance to operators of commercial shooting areas. Mitchell joined the Commission staff in 1947 following employment with the Wildlife Management Institute. He will be stationed in the Greensboro vicinity.

Charles E. Hill, supervisor of the Wildlife Plant Nursery at Chapel Hill since July 1956, has been appointed District 7 game biologist to replace Mitchell. Hill will also be supervising small game biologist for the mountain districts. A graduate of N. C. State College, the Union County native will live in Statesville. Prior to becoming supervisor of the nursery, Hill was district game biologist in District 5.

Dwight G. Rivers, Jr. has been appointed district game biologist for District 1. He has been assistant fish biologist for some time in the same district. Rivers will make his headquarters in Elizabeth City.

Filling the vacancy created by Rivers' transfer to game activities will be Jack Bayless, trainee in the Fish Division for the past two years. Bayless, who will also make his home in Elizabeth City, will be assistant fish biologist.

Another change in the Fish Division was the elevation of Bill Smith to acting project leader on the Warm-water Stream Project. Smith, who has been assistant on the project for a year, replaces Ken Johnston who will resume full-time duties as District 2 fish biologist. Smith will continue to make his headquarters at Hookerton.

Other changes include the transfer of Earl W. Sanders from Daniel Boone to Caswell Wildlife Management Area as refuge manager. The new refuge manager for Daniel Boone is Dewey McCall, who will be replaced at Harmon Den by Bob Wray.

PROTECTOR OF THE MONTH

Clyde L. Jackson

Clyde L. Jackson, Wildlife Protector for Henderson County, was born on October 4, 1923. After having received his education in Henderson and Polk counties, he served 33 months with the 87th Infantry Division as a radio operator in the 336th Field Artillery Battalion. He saw action during World War II in the European Theater, and during his tour of overseas duty, received the following medals and citations: Purple Heart, European Theater Medal, Bronze Service Star. After he was discharged on November 5, 1945, he was employed with Nash Chemical Company of Hendersonville, North Carolina and Belle Glade, Florida.

Mr. Jackson first became associated with the Wildlife Resources Commission in December, 1950. He has gained recognition from many Tarheel sportsmen through his ardent work, and in 1958 was elected to represent his district in the Protector of the Year contest, sponsored by the North Carolina Wildlife Federation.

ENFORCEMENT RECORD FOR FEBRUARY

Persons checked	10,397
Total prosecutions	300
Total convictions	267
Total cases not guilty	15
Total cases nol prossed	18
Total fines collected	$2,496.00
Total costs collected	$1,933.25

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: What are the license requirements for the use of fishing access areas in North Carolina?

ANSWER: The regulations require that persons using the boat launching facilities of such areas have either a valid fishing license or permit or an annual fishing access area boat launching permit which may be obtained at a price equivalent to that of a state resident fishing license. Possession of a fishing access area boat launching permit does not dispense with any statutory requirement of having a fishing license or permit in order to fish.

Operation . . . CHECKING STATION

By Kenneth J. Chiavetta
Game Management Specialist

How are we doing with the excess population of deer in some areas? Game biologists studied antlerless deer at several areas this fall to find the answer.

LAST December Commission biologists made a considerable effort to get basic information on the breeding success of the deer herds of North Carolina. Eighteen checking stations were operated near the areas where the special antlerless deer seasons were held to collect information from harvested deer. In the past we have had to base our herd management on the weights and measurements obtained from the antlered bucks which hunters brought in. In 1957, we made an effort to cover both segments of the deer herds—the antlered and antlerless deer. We found that more information could be gained from checking the antlerless segment of the herd. So, we concentrated on information from antlerless deer in 1958.

From the antlerless deer we can obtain (1) age class information on *all classes including the fawns;* (2) sex ratio information from the fawns; (3) the breeding history of the past season; (4) the proportion of does bred at the time of the hunt; and (5) the expected fawn crop for the following season.

On four of the management areas the hunting season was held during the period December 1-4, while on the county areas the hunting season was held two weeks later, December 15-16. The Sandhills Wildlife Management Area antlerless deer hunts were also held on the later dates.

The fact that there were two seasons helped us get information on the progress of the breeding season. On the management areas which had an early season, only 50 to 82 percent of the adult does had been bred (Table I). On the areas which were hunted two weeks later (including Sandhills), 90 to 100 percent of the does had been bred.

Considerable differences appeared in the predicted fawn rates for the different areas. These fawn rates were based upon the information from bred

The map below shows the locations of the overpopulated areas where deer herds threaten to destroy their ranges. Around the problem areas forests and agricultural crops are endangered unless a continued program of deer harvesting is maintained.

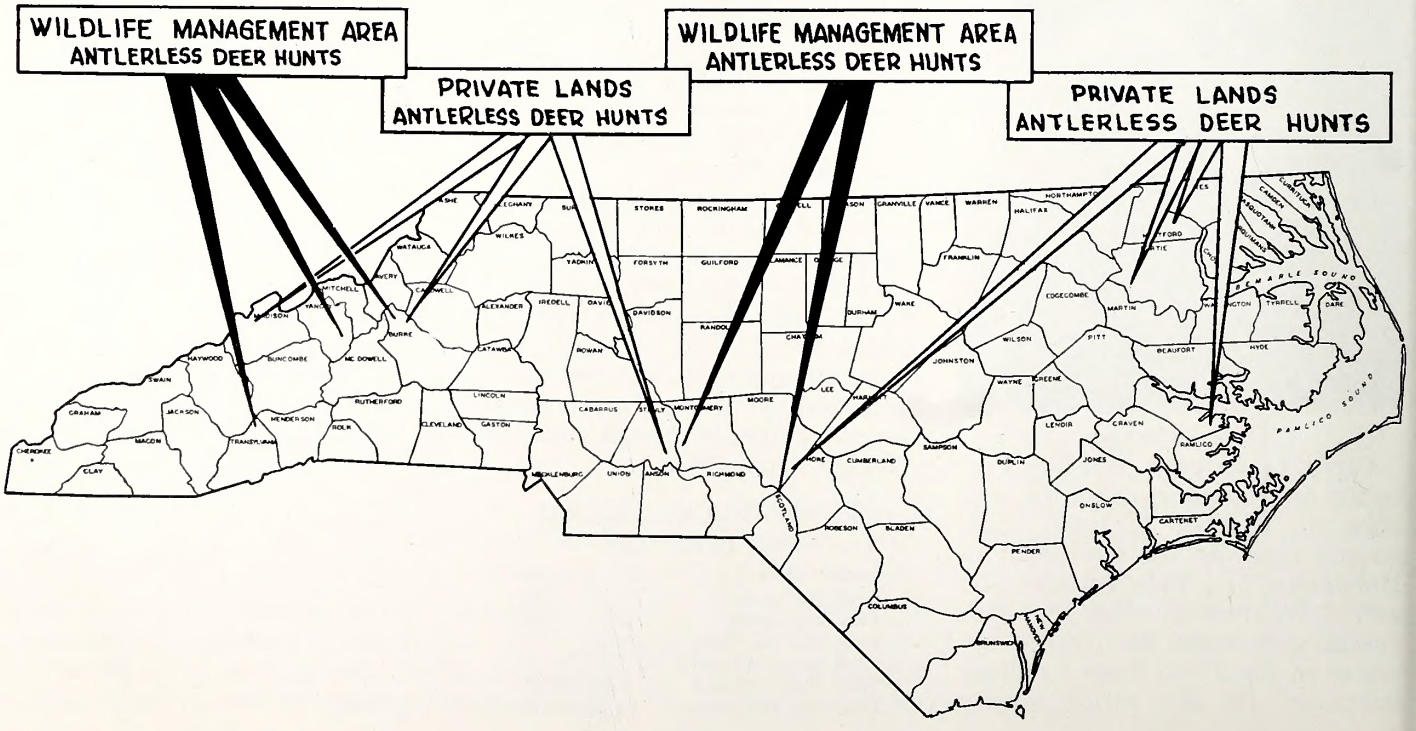


Table I Percentage of does bred, 1958 antlerless deer season

Area	Fawns	Yearlings	Adults
Does bred as of December 1-4			
South Toe	0	17	50
Uwharrie	4	23	82
Pisgah	0	60	70
Daniel	0	67	78
Does bred as of December 15-16			
Sandhills	0	80	90
Richmond-Scotland-Moore	25	80	100
Burke	11	100	92
Halifax-Bertie-Hertford	0	69	95
Montgomery	8	75	96
Stanly	0	75	93

does of three major groups, but to simplify the analysis, only the adult doe class is considered in this article.

Low rates of fawn production were indicated for Mount Mitchell, Uwharrie, and Sandhills. For these areas the fawn-per-doe ratio ranged from one to approximately one and one-third fawns per adult doe. At Pisgah, Daniel Boone, Burke County, and in the counties surrounding the Sandhills the results were *intermediate* ranging from 1.60 to 1.71. On the remaining areas the fawn production was rated *high* with averages ranging from 1.76 to 2.15 fawns per adult doe.

Table II Expected number of fawns per adult doe, based upon examination of deer ovaries collected during the 1958 season

Area	
Does bred as of December 1-4	
South Toe	1.10
Uwharrie	1.30
Sandhills	1.33
Pisgah	1.60
Does bred as of December 15-16	
Richmond-Scotland-Moore	1.67
Daniel Boone	1.71
Burke	1.71
Halifax-Bertie-Hertford	1.76
Montgomery	1.86
Stanly	2.15

What do these figures mean? Some areas such as Mount Mitchell, Uwharrie, and Sandhills appear to have suffered a reduction in breeding rate due to high deer populations in relation to food supply. Deer census figures for 1958, derived from deer drives and deer pellet group counts, support this conclusion. At Mt. Mitchell the deer population level was approximately 15 deer per hundred acres; at Uwharrie the level was approximately 14 deer per hundred acres; and at Sandhills (where the native range is much less productive) the figure was five deer per hundred acres. In each of these cases the deer population appears to be in excess of the carrying capacity for the respective ranges and continued intensive harvest of the deer is indicated.

For the areas with intermediate production, Pisgah, Daniel Boone, Burke County, and the counties surrounding the Sandhills, a slightly reduced breeding rate is indicated. Even at reduced breeding rates, with herds at or beyond carrying capacity, a slight increase in total number of deer could result in a serious blow to the habitat. Antlerless deer seasons are the best remedy for the situation and should be continued to prevent excessive build-up which in turn would result in further depletion of the food supply and further reduction of fawn production.

Photo by Jack Dermid

Refuge Manager Ollie Thompson inspects a browse line in red cedar trees along a Uwharrie Wildlife Management Area roadside. Less deer are bred at Uwharrie because of food supply.

On the remaining county areas, breeding was at a normal rate. In such situations antlerless deer seasons should be used only to prevent crop depredation. The primary reason for conducting hunts on these areas last year was to provide relief to farmers who were suffering severe crop loss.

How do these figures compare with 1957? During the 1957 season information was available from only four areas. The following tabulation indicates the fawn production for the adult doe age class:

Areas	*1957*	*1958*
Mt. Mitchell	1.66	1.10
Uwharrie	1.21	1.31
Pisgah	2.00	1.60
Daniel Boone	1.70	1.71

It appears that the antlerless deer harvest was not sufficient during the 1957 and 1958 seasons to effectively raise the level of breeding—the deer are still at or near population levels endangering the respective ranges.

Where do we go from here? What should we do in successive seasons? It seems that the very limited antlerless seasons conducted have had as yet but slight effect on deer populations. Spring deer population studies are being conducted, and the results of these studies will provide further information on the effect of the antlerless hunts on deer population levels. This information and observations of deer damage to farm crops this summer will provide a sound basis for formulation of antlerless deer seasons for this fall.

Pluggin' for

By Darrell E. Louder
Fishery Biologist

HAVE you ever stood beside a lake on a cool morning in early May when the sun's rays are filtering through the mist as it lifts from the warm water—and still no bass? Has your fishing partner caught his limit of eight good-sized bass by 7:30 and you have caught just one, and that only a nine-incher? Have you ever stopped at your local fish market to buy fish rather than tell your loving wife you couldn't catch any? Friend, if this is you, try some of the following tips on plugging for largemouth and fill your own creel, rather than going home empty-handed.

To catch bass, you have to know where to fish. Largemouth are usually found in the shallow parts of mud-bottomed lakes and rivers where the aquatic vegetation is fairly abundant. They also prefer stumps and debris-filled coves where there is an abundance of minnows, frogs, and aquatic insects. During the fall, winter and spring the largemouth will be found feeding along the shallow shorelines and during the summer in the deep, cool holes and beneath obstructions.

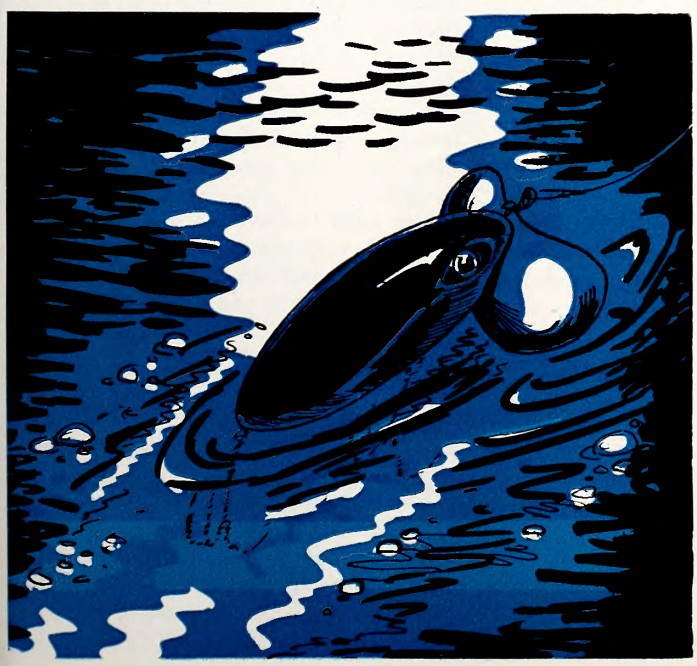
When I plug for bass, I prefer to use a light action, 5½-foot glass rod with at least 50 yards of 15-pound nylon line on a light-running, level-winding reel. To this I usually attach a 10-foot nylon monofilament leader. The reason for this is twofold; first, it gives the bass the impression that the lure is a free agent. And second, it serves as a safety device as the fish is reeled in, the leader being

Largemouth

wrapped around the spool several times to prevent the line and leader from separating. This has saved several bass for me that otherwise would have been lost.

When it comes to choosing a lure, just about any type will sometime or other take bass, even an old shoehorn with a hook in the end. To prove this point, I have found various types of fishes, various species of insects, a bird, a small snake, pieces of metal, cloth and a live three-inch turtle in bass stomachs while checking their contents. Surely, if a bass is that hungry, you should be able to fool him with an artificial lure, if you know how.

Bass are suckers for top-water plugs and this brings out the smashing, explosive characteristics which have given them the number one spot as far as fresh-water game fish are concerned. I prefer such surface lures as the Hula-Popper, Jitterbug and Injured Minnow. By casting the surface lure into the small coves or pockets near rocks or stumps and brush piles along the shoreline the plug is knocking at Mr. Bass' front door. Since these waters are shallow, the best time to fish is in the early morning and late afternoon hours. In bass fishing, the trick is to arouse the fish's curiosity rather than to appeal to its appetite. Don't hurry the bass; if he doesn't strike on the first cast, try it again—as a bass will sometime watch a plug a long time before striking. I have had a bass take a plug after it had lain on the surface a full minute, while I untangled a backlash. Remember, the longer the plug lies on the surface, the more it works for you.



When using a surface lure, vary the manner of reeling in the lure, skipping it across the water, allowing it to rest for a spell after each skip. Twitch the rod tip several times, jerking it into convulsive spasms to stir up the calm surface of the water—thus exciting the bass into striking the lure.

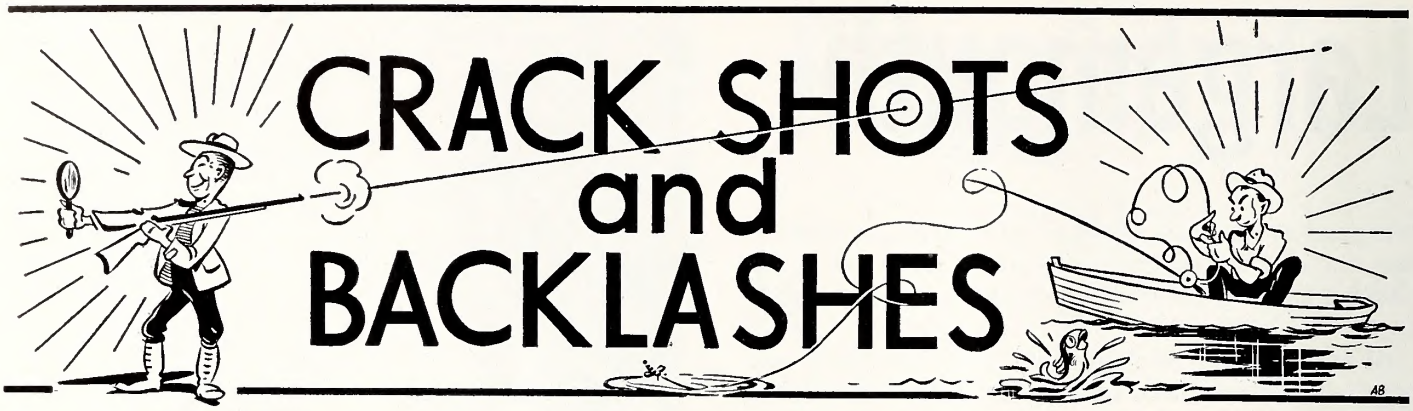
Plug-popping is an excellent method of catching largemouth at night. When plugging at night use a dark-colored lure so that it is silhouetted against a lighter sky as it is retrieved.

During and after a rain is an ideal time to catch bass at the inlets to lakes. The water running down these inlets carries an abundance of insects, worms and minnows that appeal to a bass' appetite. By casting a lure across the inlet and making it behave like something trying to escape to the shore, the bass is given the urge to strike as the lure moves from the muddy water into the clearer water where it can be easily seen.

When fishing a weed bed, I prefer a Johnson Silver Minnow with a pork rind. I have caught large numbers of bass on this lure by casting it into the weeds and retrieving it fairly rapidly and jerkily, while holding my rod tip high in the air so as to prevent the line from dragging the lure beneath the surface.

Underwater lures, such as the Mirror Lure, Hell Diver, Dive Bomber and Bass Oreno are large, giving the bass the impression that it is a mouthful. These lures are the most effective during the heat of summer when the bass are in the deep, cool holes as well as on fairly windy days. Here again the lure should not be retrieved too rapidly.

Next time you go plugging, remember that it is not the number of casts you make, but where and how you make them that counts in bass fishing.



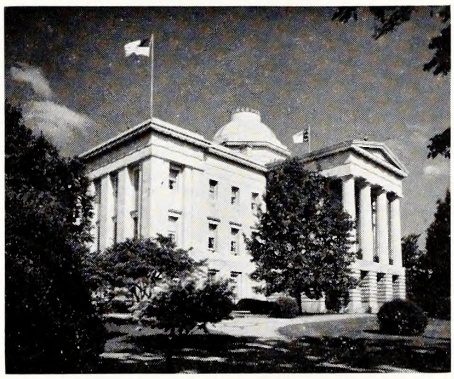
DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

According to a survey made by the Outboard Boating Club of America 29 states have introduced to their respective legislatures proposals having to do with boat numbering and boating safety. Seven additional states have legislation in the planning stage but not yet introduced. The survey is about two months old, and by this time it may be said safely that at least 33 states have boating laws passed or in the legislative mill. Legislation in 19 states puts the responsibility for boat numbering, enforcement and fee collecting in the hands of existing fish and game or conservation departments. Thus far only Utah is in the process of creating a separate state agency for handling motorboat problems.

Plans vary among states. Missouri puts motorboats administration in the hands of its revenue department. In Montana the State Board of Equalization carries the ball. The New Mexico Park Commissioner gets the responsibility, while in Oklahoma the Parks Division of the State Planning Board gets boating control. The State of Washington will turn boating administration over to the State Patrol. In Wyoming county clerks issue two-dollar permits for the life of the boat and keep the fees.

Of 29 states working on boating legislation, fifteen make no provision for the distribution of fees collected. In addition, there is a great deal of variation in boat numbering fees and the period of time covered by the fee. Colorado will collect from $2.00 to $24.00 yearly, depending on the size of the boats; Connecticut $2.50 for any boat carrying over seven and one-half horsepower, and Missouri asks for $5.00 for three years for all motorboats.



From the above it will be observed that despite a careful study by the National Council of State Governments and a uniform recommendation on model legislation, most states have their own ideas as to how boating legislation should be set up. The course North Carolina will take remains to be seen.

* * * *

The fish were really hitting, and the old man caught his share. He caught all he wanted—and then sat down to rest. There on the pier, with a warm sun and a fresh breeze, he went to sleep. And died.

Afterward, the pier operator observed, "Not a single person on the pier seemed upset about the old man's death. They all felt that he died happy. He had caught his share."

Possibly that's why doctors often recommend fishing as a cure for many modern-day ailments. If the excitement of catching one's share proves to be too much for an overworked heart—well, that's a pretty nice way to go.

Today's Legal Hunting Seldom Over-Harvests Game

Fortunately research in the field of wildlife conservation shows that where adequate habitat is available the law of diminishing returns sets in on the hunter and he abandons the chase before the wildlife crop is over-exploited; that is, under our present-day restrictions. Unlimited hunting seasons and limitless bags could, and likely would, seriously reduce some species.—*Robert A. McCabe, University of Wisconsin, in WISCONSIN ACADEMY REVIEW.*

THOUGHTS ABOUT FROGS

As I stroll along a swamp road
Just after the twilight hour
When all is calm and still
Going slowly on my way
Crushing the dead leaves with my feet
Feeling the cool damp moss underneath
Getting next to nature—alone with God!
Suddenly I hear a chorus of rainfrogs
Praying for a shower!
I stand quietly feeling the great music
God gave them to perform there in his swamp land.
And while I'm meditating
The great base voice of a giant bullfrog
Is heard twice—in the distance
Close by a tiny greenfrog high up in a tree
Brings forth its flute-like call
Then—they all together
Form one grand concert!
I go home slowly and retire in peace
Feeling that—the Maestro of that great concert
Will surely care for me.

—Lucy S. Farrier, Faison

Mailing Suggestions

DEAR SIRS: Because Wildlife in North Carolina has such outstanding covers I would be greatly pleased if my copies arrived in good condition. May I suggest rolling them in a paper cover as many magazines and calendars are. JOHNNY PEELE III, RALEIGH

Individual wrapping is done only for R.F.D. or small post offices where only a few copies are delivered. —Ed.

Old Gun Makers

DEAR SIRS: I have been subscribing to your magazine Wildlife for quite a num- of years. Have really enjoyed it very much.

I have a request to ask of you. I am very interested in the old muzzle-loading cap-and-ball and flint-lock rifle. I was wondering if you, or any one you know, could tell me the names of the old rifle makers of the state of North Carolina. I thought about writing the N. C. Historical Department about it, but did not have their address. So, I thought if you could not help me, perhaps you could direct me to someone who could. Hope to hear from you soon. North Carolina has a very interesting past, if people would only look back into it. E. B. McRAE, HAMLET

Write to the Department of Archives and History, Raleigh, or maybe some of our readers can help you.

Lucretia Again

DEAR SIRS: Is it legal to pick hypochondriacs along the highway right-of-way? I have heard they make lovely floral arrangements. LUCRETIA PLYMPH, WAKE FOREST.

Dear Lucretia: Some of them make floral arrangements as a hobby, but M.D.'s and psychiatrists are allergic to them. —Ed.

Likes North Carolina

DEAR SIRS: Please accept the enclosed check for renewal of my subscription to Wildlife. I fail to see how there can be a great deal of profit for your program when you charge so little for so much magazine. If there is any residue you are certainly welcome to it as wild creatures recognize no state boundaries and what benefits one area must also benefit all.

We are indebted to the State of North Carolina for the fine treatment we have received when camping in your state parks where, I am sure, no better treatment is given to your own people. WALTER L. PRATT. BRISTOL, CONNECTICUT.

Track of a seven-toed prowler? No Br'er Coon just left two tracks in the same spot.

Quail Longevity

DEAR DR. HARLOE: Your letter of February 10, to Mr. Rod Amundson has been referred to me for reply. Information which we have obtained here in North Carolina as well as published facts from other states, indicate that the average longevity of bobwhite quail is slightly greater than one year. We know, of course, that some individuals live to be three or four years of age; others die immediately after hatching. All of the individuals in a wild population are considered in obtaining the above mentioned average.

I would like to call your attention to an article entitled "Quail Wings" which appeared in the November, 1958 issue of **Wildlife In North Carolina.** In general, it was found that about 75 percent of the fall population is composed of young of the year. This indicates quite clearly an average turn-over in the population of 75 percent.

After having read the article, I feel you will have a much clearer understanding of mortality in quail populations. T. STUART CRITCHER, FEDERAL AID COORDINATOR, GAME DIVISION

Impressed With Bicolor

DEAR SIRS: Just a note to ask you not to forget me concerning bicolor lespedeza. If possible I would like 20,000 seedlings of bicolor, some (plenty) bicolor seeds and plenty of sericea. Later in the spring, I would also like more annual seeds for planting. This past year I do not think I had enough.

The last day of hunting season was productive as far as I was concerned in that I found three coveys of birds all of which were feeding in bicolor that had been planted. The more I see of this, the more I am impressed with bicolor as a late winter food. WILLIAM B. YOUNG, M.D. WILSON

Junior Writer

DEAR SIRS: Thank you for letting me try to meet your standards for conservation writing. I hope that my essay is good enough for you. If you take my offer I will be very pleased. Enclosed is an essay about "Eastern Gray Squirrel Migrations."

EASTERN GRAY SQUIRREL MIGRATIONS

Gray squirrels multiply very fast. Sometimes they are so numerous that a migration starts to get more food. As they move along others join them until a party of over a 1000 is moving in a straight line. They travel over mountains, across woodlands, in swamps, and they even swim lakes. After a migrant group has crossed a lake hundreds of less fortunate ones are seen floating down the lake.

These signs, placed in the lower portions of our coastal streams, designate inland boundaries of commercial fishing waters. They have no meaning for sports fishermen.

Squirrel migrations are now a thing of the past, but in 1933 a group of squirrels seemed to be up to something. Naturalists were called into Connecticut, when they reached there a group of about 1,600 squirrels were crossing the Connecticut River. A few months later they reached New York. Here many of them swam the Hudson River, but a few hundred stole rides on ferrys. When the squirrels got across into New Jersey the whole migration party broke up. Not a trace of them was found except for a few bodies in the river.

This goes to prove why sometimes there may be hundreds of squirrels in a radius of one square mile while in a square mile next to the latter may be completely empty. Also this is maddening to hunters in the wrong place. **JACK SIMPSON, RALEIGH (Age 13)**

Baby Crows

DEAR SIRS: I am planning to catch a crow or two this spring and raise them for pets. What month should I get a feathered baby crow from his nest? Will they make good pets? Thank you, GENE BROWN, DURHAM

The nesting season for crows is usually from late March through May. If you go out in the woods about the middle of April you will hear young crows call in the nest. Thus you may locate them and determine if they are large enough to be taken as pets. Crows make very affectionate, if noisy, pets, and mischievous as well as interesting. They will eat bread soaked in milk, hamburger, and just about anything you can find in the way of food around the kitchen.

Two bass at one time—a fisherman's dream. This clever double exposure is the work of Shafter Buchanan of the State Advertising Division and is symbolic of the excellent fishing Tarheel waters offer to the angler. May is here; the fish are biting; let's go.

DEAR SIRS: I have scbscribed for and received Wildlife In North Carolina since it came into existence, and thank you boys for doing a swell job for the money. Now what I would like to know is this, did we have a scarcity of cottontails this year? And if so why? My three buddies and I have eight beagles that are experts on cottontails. We have hunted 11 full days this season, in seven different counties, these consisting of Edgecombe, Lee, Robeson, Duplin, Guilford, Hoke, and Harnett. Most of which we had hunted the same places for six years, and had no trouble in finding plenty of cottontails. We nearly always got our limit, but this season we have killed less than two rabbits per man per day, and have lost less than 5 percent of all rabbits found; we just could not find them.

I would like to hear from some of the other rabbit hunters on this deal, and try to determine what was wrong. Will you please publish this in our Wildlife Magazine. L. R. FISHER, DURHAM

DEAR SIRS: When everyone elses' February issue of Wildlife In North Carolina except mine came through the post office, I decided something was wrong. Upon looking at the printed tab, or whatever it is called, on a previous issue, I saw my subscription expired in December, but you had kindly sent a January issue, in spite of it all.

At any rate, since this magazine is the best piece of goods in existence today for the money it costs, please accept the enclosed dollar for another two years—beginning with the February issue. I still am unable to see how you can publish such a magazine for 50 cents a year. Please, however, do not allow this last statement to dwell upon your minds until you decide it just cannot be done and go up on your price or stop the magazine. altogether. I do believe, however, that your subscriptions would not drop by as many as one subscriber, should you increase your price.

I am neither a hunter nor a fisherman —old age and World War II having put a stop to it for me. That doesn't mean I am not interested in the sport (s), as well as the conservation of fish and game in North Carolina. Not to mention the forests, trees, fields, and woods of the state. And it hurts very much to stand by and see these being relentlessly destroyed with the coming of superhighways, housing developments, shopping centers, and everything else not too good that the last half of this century is bringing.

Perhaps the modern-day human being enjoys getting on these superhighways and driving his automobile at break-neck speeds to the nearest supermarket or housing development, with his scenery on either side being billboards, motels, factories, and the likes; but, personally, I wish for the old days (pre-WWII) when you could get in a car (if you were too lazy to walk a mile) and drive just a short distance, park your car, and enjoy a nice walk through the fields and the woods. Now, in order to find these woods, you have to drive a dozen or so miles, just to find them. Then, what you find will put the very name "woods" to shame. Nowadays, when one mentions woods, he usually means some sort of a golf instrument.

When I was much younger, I could get on my bicycle and, in a very short time, be in the head of the woods—as we used to call them. My son, a Cub Scout, would, if he chose to, have to be transported by car for goodness knows how far before he could even smell 'em, let alone take a walk through them. The modern-day traffic makes it almost suicide to attempt the trip by bicycle.

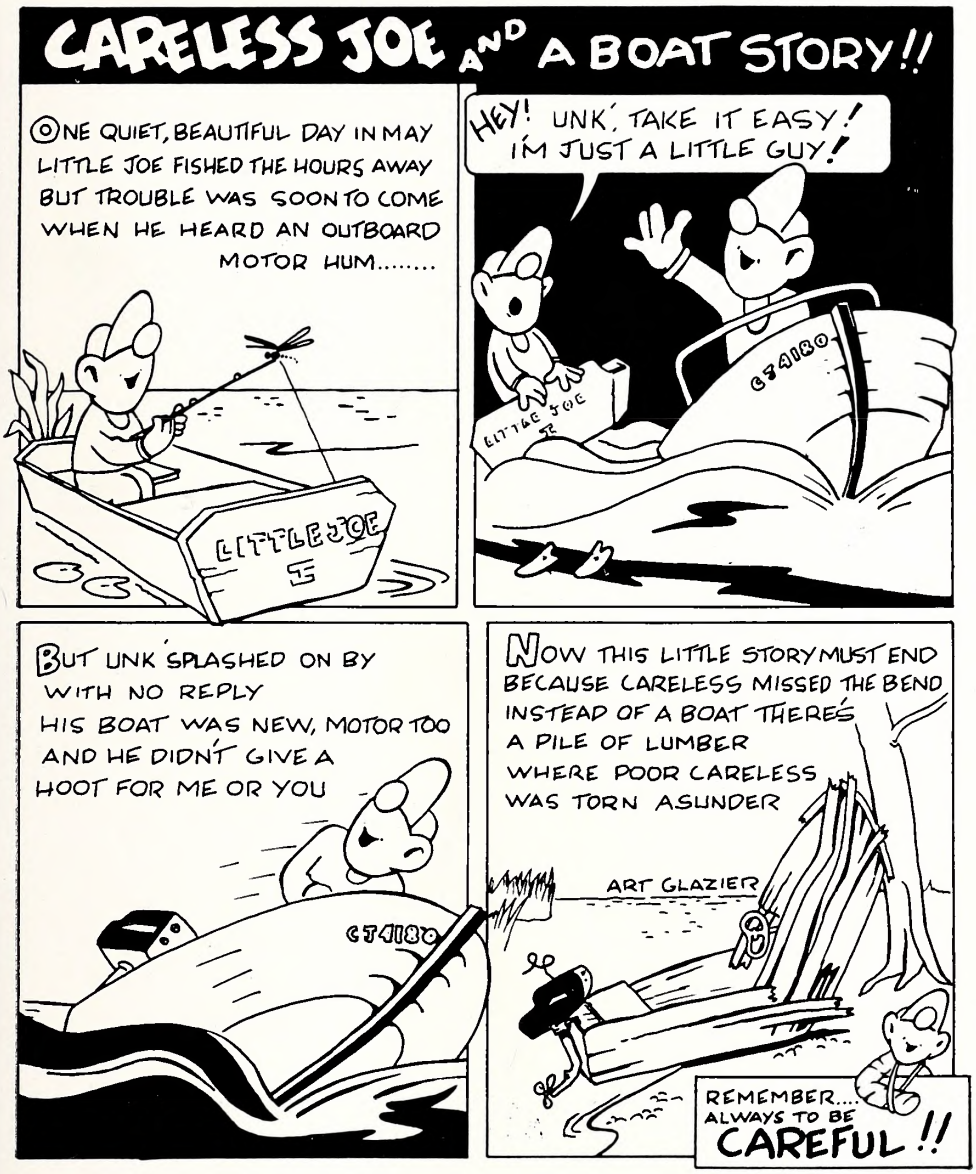
This is quite a departure from the note I was going to write you to renew my subscription; but it might help you to know your work is very, very much appreciated by someone who isn't a hunter. Again, thank you for publishing such an extraordinarily fine magazine. I wish it came out more often. D. L. CROWELL, JR. SALISBURY

Striped Bass Problem

DEAR SIRS: I have just finished the March issue of Wildlife and, as always, I enjoyed it.

In his letter on Bass Exploitation, Mr. Dudley Smith mentions "Our Club," "We," and what is "Our Club?" I missed the November issue. Perhaps that explains why I am in the dark. Anyway, are not our own N. C. people more qualified to know what is best where our fish and game are concerned?

I have fished in our eastern North Carolina creeks and rivers all my adult life and caught many bass; from three inches long to seven pounds. Eighty percent of my bass have been in the 1- to 1½-pound class. In my opinion fish of this size make up a big percentage of our east-



comes property of the individual. It would be difficult, if not impossible, to legislate the manner in which the fish are disposed of—except illegal sale.

Have Quail Changed?

DEAR SIRS: During my vacation this year, January 23 until February 2, I went quail hunting every day except Sunday and kept a written record of the number of birds that were found. The results might be interesting to other quail hunters.

In nine days of hunting, 39 coveys totaling 536 quail were found. Covey sizes ranged between 8 and 20 birds with the average being 14. The coveys did not hold well for the dogs, and we only had 10 covey shots out of the 39 coveys found. Three of these were in the open, while seven were in the woods.

Most of my hunting was done in southeastern Wake County, but two trips were made to Nash County. I hunted with different hunters every day and used 3 to 6 dogs on each trip. And I think our dogs are average bird dogs of today. Old bird hunters say that dogs of today are not as good as old Don, Spike, or Bell that they hunted a few years back. But have the dogs changed? We are not hunting the same birds we used to hunt. Woods are thicker; there are more hunters than ever; the country is given away to houses; and there are more stray dogs and cats and foxes to keep the birds in a tense mood most of the time. Maybe it is the birds that are changing!

The average bird hunter of North Carolina may have found more quail than we did in the same length of time. We would like to hear from other quail hunters so that we can compare our figures with theirs.

The farmers were very nice to me everywhere I hunted, graciously giving permission to hunt. I would like to take this opportunity to thank them. BAY NOWELL, WENDELL.

ern North Carolina bass population. If Mr. Smith, of New Jersey, could influence a 16" minimum law in our state that would leave out entirely the majority of our bass population. Maybe our minimum should be more than the present 10", but certainly not 16". There is a whale of a difference in a 10" bass and a 16" bass. I personally favor the old 12" law.

If Mr. Smith purchases a North Carolina fishing license each year he certainly has a right to work for his ideas in our state. If he does not purchase a North Carolina license what right has he to try to influence any of our laws?

What we need more is a law, and a way to enforce it, placing a severe penalty on people who catch a "string of fish," take them home to show them off, and then because they can't give them away, they throw them away. They don't eat fish; they just enjoy the fun in catching them. LOYD FOREHAND, GOLDSBORO

Mr. Smith is President of the Salt Water Sports Fishing Association. The bass the organization has in mind are striped bass, and no licenses are involved for taking them in salt water. All fish, taken in legal quantity and manner be-

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WILDLIFE BABIES

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Your best way to help woods babies is to leave them where you find them. Parents of apparently abandoned young are nearby usually, waiting for the danger of your presence to pass. Remember two things when you discover wildlife young in the spring and summer—first, it's unlawful to take game animals when hunting season is closed, even when taken alive. And wild parents can always take better care of their young than human foster parents could—so to give wildlife babies their best chance, let Nature take care of her own. By leaving young animals where you find them, you'll be conserving wildlife and saving yourself some grief as well.

J.W. TAYLOR

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Wildlife

JUNE-1959

TEN CENTS

in north carolina

Photo by Jim Lee

FARM POND HARVEST

Count the farm ponds as you drive along a country road in North Carolina—and you will begin to realize what a tremendous asset they represent to the fisherman. See page 4 for tips on growing fish like these above in your own pond.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

Few babies of the wild are endowed with the irresistible charm of the whitetail fawn. Its big lovable eyes, handsome coat, and look of helplessness have an appeal that has often led to its undoing, for many people who are lucky enough to discover a fawn cannot walk away and leave it in the woods where it belongs.

It is commonly believed—perhaps purposely—that a fawn alone in the woods is deserted by its mother. This is not true, for does normally hide their newborn in a secluded bed while they are away seeking food and water.

Although it is a game violation to capture a fawn, it is even more of a crime to take a fawn from its natural home and commit it to the wretchedness of captivity. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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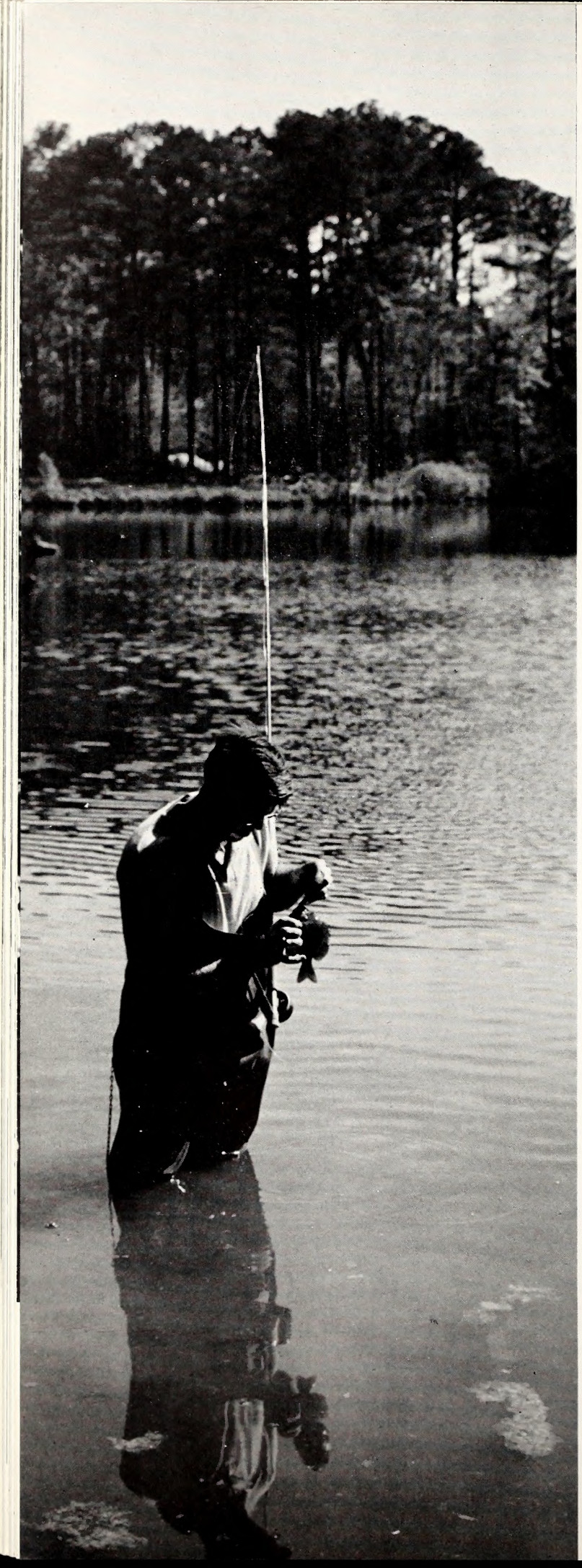


Homemade

Here are some tips for maximum production of fish in farm ponds—with ways to obtain maximum harvest.

OF the forty-odd thousand farm ponds in North Carolina, perhaps less than 25 percent are properly managed. This means that most farm pond owners aren't getting their money's worth from their investment. True, many such ponds were constructed for irrigation, fire protection, stock watering and uses other than fishing. Yet, many ponds could provide good angling. The key is good management.

If maximum production and large fish are your objectives, a thorough program of fertilization is a must. Start early or don't start at all: March is best; April almost too late. Use 100 pounds of 8-8-4 per acre, or 100 pounds of 6-8-6 supplemented with about 10 pounds of nitrate of soda. Broadcast it from the banks about every 10 days. Unless you plan to keep the water green, don't fertilize.

Clean banks will help you harvest the crop—and it's there to be harvested! Grassed banks cut down soil erosion and help check turbidity. A muddy pond is an unproductive one—the fish simply can't see to feed. Cattails, willows and rushes around a pond serve only to discourage the bank fishermen and a pond without fishermen soon becomes a pond full of stunted fish. Cattails are often stubborn to subdue, but a 10 percent solution of 2,4-5T or one of Dowpon, sprayed on the growing plants helps control them. One sure way of diminishing their number is by simply pulling them up. Don't let them get a headstart on you, though.

BELOW: Clean banks with a protective cover of grass to reduce soil erosion permit easy access to the water. The grass will hold back soil that muddies the pond following rainstorms.

Fishing

By Duane F. Raver, Jr.

Federal Aid Coordinator

Photos by Jim Lee

Various algae come and go with the seasons in ponds, and usually they are controlled with powdered copper sulphate. A pound and a half per acre-foot of water applied by drifting a cloth sack full of the powder through the water should do the job. If the algae problem persists, try a small spot application of Weed-Rhap 20, Reasor Hill's new granular 2,4-D. It works quite well on submergent vegetation too, and won't harm fish if applied according to directions on the container.

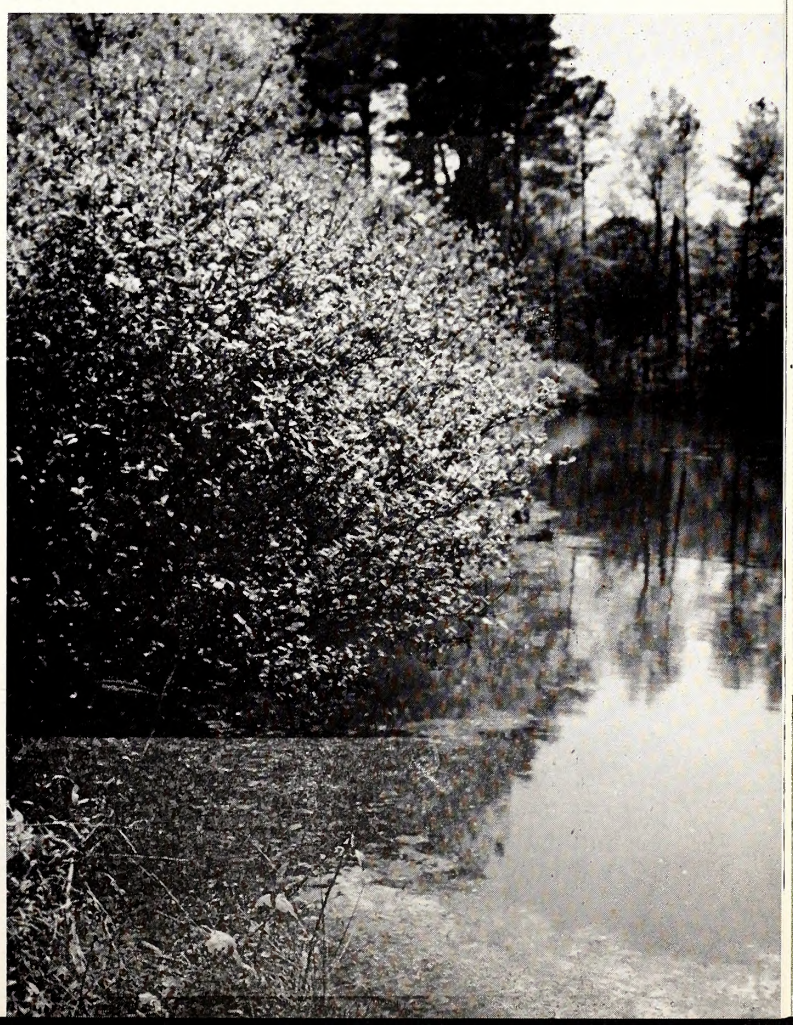
The real enjoyable part of pond management is harvesting the crop. More pond problems arise from overpopulation of bluegills than from any other single factor. The fact of the matter is that it's downright difficult to keep the little critters in check by fishing. When you figure that over 200 pounds of usable blugills should be harvested from each acre of water each year, you soon see the problem. It may be a little easier to catch the surplus bass—say 50 or 75 pounds per acre, but both fish are going to require a lot of fishing.

There are other problems with the home-made fishin' hole—construction, a good overflow pipe, an adequate spillway, muskrat protection, rough fish control, and so on! To have top-notch fishing they take some thought and constant attention; the end result will be whatever you put in it in hours and dollars.

ABOVE: Fertilization of the pond is one way of increasing the harvestable fish population. Fertilization is most effective if started in early spring, broadcasting it from the banks.

RIGHT: Too much vegetation along banks, such as this heavy growth of alder with clots of algae in the water beneath make fishing more difficult. Lack of fishing results in stunted fish.

BELOW: Trouble ahead for this pond owner as willows and cattails flourish. These plants crowd the water's edge and are hard to control once they have become well established.



Currituck Sound is justly famous for bass fishing and waterfowl hunting—but sportsmen say their harvests have declined over the years. A joint study project is investigating the possible reasons for this decline.

CURRITUCK Sound is a name symbolizing good fishing and waterfowl shooting to sportsmen all over the United States and Canada.

To have such a widespread reputation Currituck Sound had to provide good sport for both the angler and the hunter for many years. There is no written history of the waterfowling in Currituck Sound, but oldtimers still recall much of the past. They tell of the skies darkened by flocks of ducks coming in to feed—so many, in fact, that market hunters with extra-large-gauge shotguns were able to ship barrels of birds out of the area each day.

Whether the hunters remember just "the good old days," forgetting the times when the birds didn't come cannot be determined with any accuracy. Both state and federal governments soon found out, however, that our wildlife is not able to survive with uncontrolled harvest. Conservation measures had to be taken to insure a reasonable harvest and an equal share for all. It was obvious, too, to the more conservation-minded legislators that ducks and geese were more valuable to the sportsmen than they were to market hunters.

The history of largemouth bass fishing in the sound followed the same general pattern. Commerical fishing for the species obviously was depleting the population and the supply of fish was becoming dangerously low. At the same time the value of the largemouth to the sportsmen rose higher and higher until now the bass is one of the most highly prized catches of the freshwater angler.

In recent years hunting and fishing in Currituck Sound hasn't been up to snuff, according to the natives of the area, the guides and the sportsmen. And everyone has his own opinions as to what is wrong—not enough vegetation, water too salty or too muddy, carp too plentiful, too much acid water flowing into the sound.

Having listened to all complaints and reports on the subject, the North Carolina Wildlife Resources Commission and its counterpart in Virginia, the Commission of Game and Inland Fisheries, along with the U. S. Fish and Wildlife Service, initiated a cooperative study of the problems in Currituck Sound and Back Bay beginning in 1958. The study group has as its main objective an investigation of all the factors influencing waterfowl hunting, waterfowl foods, and fishing in the area.

The field biologists assigned to the project are evaluating all of the possible factors which may be limiting the number of ducks using the sound. They want to find out what is wrong and what, if anything, can be done to improve hunting conditions. It is hoped that the information obtained from the study will provide a basis for a management plan that will increase the wildlife of the area.

Aerial inventories of waterfowl populations have been made by the investigators to learn how many ducks and geese are actually using the vast fresh-water sound as a wintering ground.

CURRITUCK SOUND PROJECT

By Art Dickson

Fishery Investigator

Photos by the Author

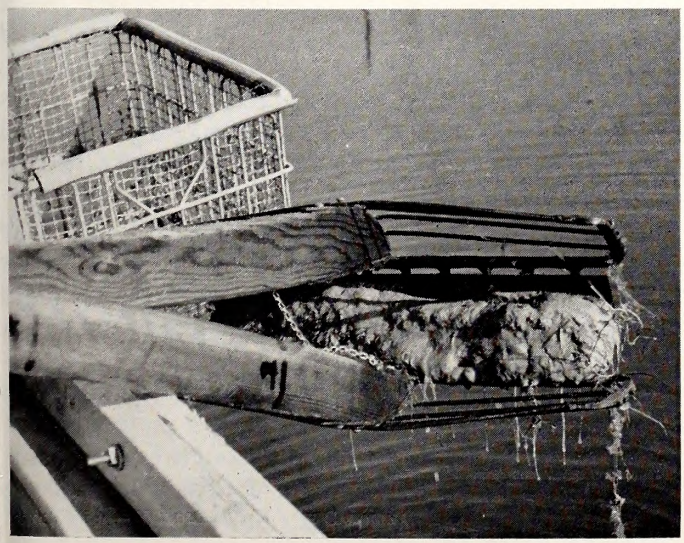
The first year of the project was spent mainly in outlining a program of study, developing field techniques and making a preliminary survey of the area.

This first year of work pointed up the complexity of the problem and partially explained why there are so many varied opinions concerning what is wrong with hunting and fishing in Currituck.

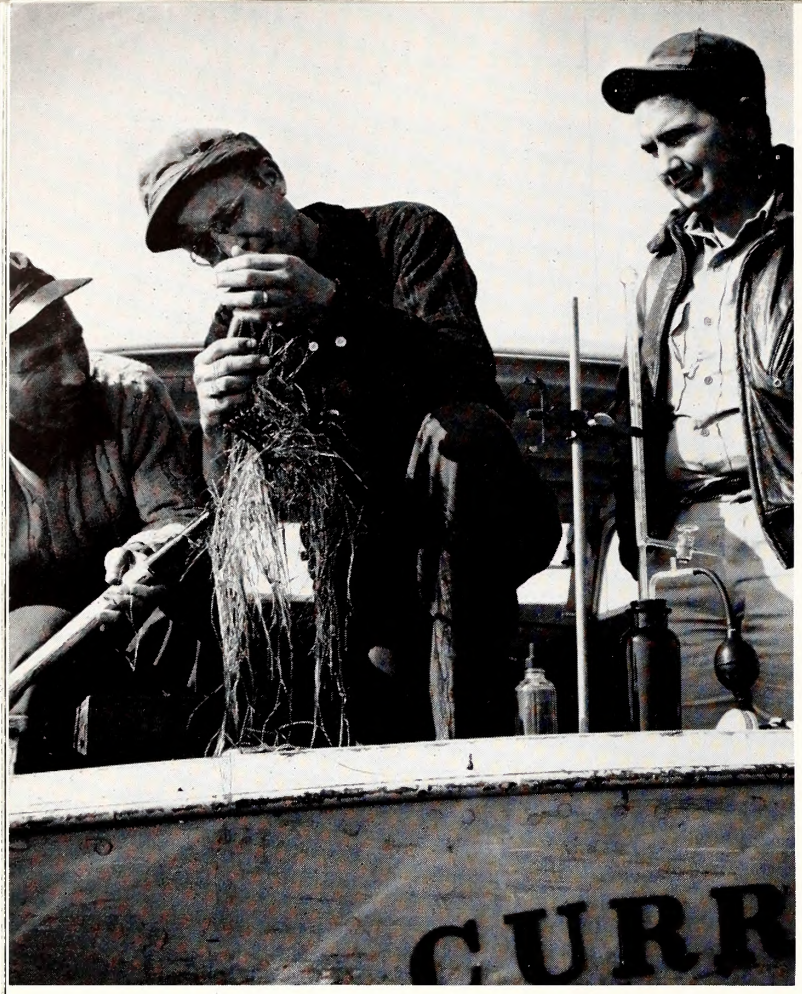
First of all, there are many different types of habitat in the sound. Bottom soils vary from place to place. The water may be turbid or clear, depending on weather and location. The salt content of the water changes from place to place and from time to time. Little is known as to what effect these changes have on the waterfowl and the fish poulations. It is the job of the investigation team to determine all the factors.

Just how to do this job presents many problems. The area of the sound itself is a major problem.

New methods of sampling waterfowl food include the use of oyster tongs to pick up bottom plants. Regular visits are made to designated sample sites, where the vegetation is measured.



ABOVE: One new technique developed on the project is a method of measuring the volume of vegetation in a sample by checking the water overflowing from this 90 millimeter shell case when the sample is added. BELOW: Rough fish could be part of the problem, and the numbers and weights of netted fish are being recorded. Here long-nosed gar are measured.



Vegetation is important in Currituck Sound; wintering waterfowl feed on submerged and floating plants during their stay. Not all plants are on the preferred list, duck gizzards show.

With about 160 square miles of water in Back Bay and Currituck Sound, travel itself becomes a big item. A good portion of the area is composed of shallow bars which make navigation difficult. Lunar tides affect the sound only slightly, but water rises and falls depending on wind direction.

A second stumbling block faced by the investigators was standardizing techniques. Since this type of work is relatively new, there were no standard methods of evaluating the waterfowl foods in such a large area. A system of plant measurement had to be devised so that growths of plants in the various areas could be compared. With this accomplished, a vegetative cover map of the entire sound can be made.

And the biologists go under water, using Aqua-lung equipment to study the varying bottom characteristics in the sound and the distribution of the submerged and bottom-growing plants.

Chemical analysis of the water has been made at intervals during the last four years. This has been done to provide a basis for comparison over a long period of time and to compare plant growth with various chemical compositions in the water.

With most of the problems of technique solved, the field biologists are ready to intensify their work this coming year.

The fish populations in those areas showing the greatest variation in water quality will be sampled during each summer of the study. This will be done to learn just what influence the chemical composition of the water has on fish populations.

The study of the waterfowl will begin this summer many miles from Currituck and Back Bay, with routine nesting ground studies to be conducted in Canada by the U. S. Fish and Wildlife Service. When the birds return in the fall to the wintering grounds, aerial inventories will be conducted biweekly on the sound. Trained observers fly at low elevations over the sound and tabulate all the birds seen. The low-flying inventory plane became a common sight over Currituck during the 1958 season. Fortunately, not a single hunter mistook the bird counter for an extra large canvasback—no one took a pot-shot at him.

The 1958 inventory records showed a larger number of birds using the sound than had been imagined by hunters familiar with the area. More than one hunter who has sat in a cold damp blind all day disagreed with the counts. The waterfowl have a dismaying habit of sitting out in the water a long way from the blinds, not making themselves available to the tempting decoys.

Along with counting the birds, hunters have been interviewed in their blinds to determine just what success they had. By comparing this information with the inventory counts the investigators are able to tell how many of the birds are being harvested in proportion to the total number that are available.

The food habits of the waterfowl are being investigated by collecting gizzards from birds shot in the sound. This data is being compared with the vegetation studies.

And the vegetation is being studied, not only through mapping the various types present in the sound, but also the limiting factors on plant growth. Experimental ponds and tanks are used for this purpose.

At the end of three years, when the program is scheduled to end, the biologists and their sponsoring agencies hope to have enough information collected to be able to answer at least some of the problems now evident in Currituck Sound.

Letter to Mr. Mikoyan

Reprinted from **The Alaska Sportsman**

Mr. Anastas I. Mikoyan
Deputy Premier, U.S.S.R.
The Kremlin,
Moskow, U.S.S.R.

Dear Mr. Mikoyan:

During your recent visit to the United States, you frequently expressed a desire to see more travel between our respective countries.

I thought you might mean it, and I accordingly telegraphed you in care of the Russian Embassy in Washington, asking your cooperation in arranging a trip for me to visit that portion of Siberia directly across the Bering Sea from Alaska in order that I might satisfy a natural tourist curiosity and report to my readers what I saw. After all, we are neighbors, and we are both (from what little we hear) booming frontiers.

As yet I have received no answer. Perhaps the telegram is still passing through channels and if that is the case, you are forgiven, for we over here are familiar with red tape also. However, I will try again to get through to you, through these pages, and if you incidentally enjoy this magazine of the newest of the United States, call it our contribution to better international understanding.

The point I wish to emphasize, Mr. Mikoyan, is that we are really neighbors up here, where the West and the East come closest together, and when you are neighbors, you visit back and forth, swap gossip, borrow butter, and discuss mutual problems.

Washington and Moscow are a long distance apart. Up in Alaska, we're only two and one-half miles apart at Little Diomede Island (American) and Big Diomede Island (Russian) in the Bering Straits. A bit farther south, in the Bering Sea, our Saint Lawrence Island is only around forty miles from your Cape Chaplina, and actually some of our Eskimo citizens here came over from your side, and I suppose there are some of ours over there, too. Down at the end of the Aleutian chain, we have Shemya Island. Just the scoot of a jet away (either way) you have Petropavlovsk harbor.

Now, perhaps some of our frontier outposts don't look too friendly to you, but then again, the same can be said of some of yours, but I'm not talking about defense and offense and upper level conversation. I'm talking now as neighbors. Neighbors are supposed to get acquainted.

And when neighbors are suspicious of one another, and aren't doing much about getting acquainted, somebody has to make the first move. So I'm asking you again, may I come over and visit?

I don't want to peek into your back bedrooms. I just want to meet your folks, share a pot of tea, sample some of your trout fishing, see what sort of problems we may be sharing in shaping up life on the frontier, and generally rubber around like any other open-mouthed tourist.

To go "whole-hog," as we say over here when we mean to impress somebody that we don't intend to stop half-way I would like, right here, to invite you over for a bit of trout-fishing and sight-seeing in Alaska. Naturally, I'm not going to show you our back bedrooms, either, but I'll guarantee you a wonderful time and I'll bet you my pet fly rod against a potato pancake that we'll be better neighbors. Fact is, if I could get Mr. Dulles and some of the boys to come up and join us, I think we could all be better friends.

I'll show you how to use a fly rod and that will get you started. You'll learn how to pay out a tapered line across a sunglittered riffle. You'll watch your trout fly dance downstream, bobbing in the tiny waves a rushing stream makes when it runs over fist-sized pebbles, and you, just like any other fisherman, will hold your breath in expectancy as that fly sails out of the main stream into the brown-dark quiet of an eddy behind a jutting log. And when one of my silvered sea-run trout friends shatters the stillness of the pool in an explosion of white spray as he hits your fly, you won't be thinking of the problems of Berlin and State Department differences of opinion.

When you land that shining trout, fresh and hard from the salt chuck, you'll feel him quivering and cool beneath your hand, and you'll be quivering a bit yourself at the wonder of it all.

You won't be thinking of Potsdam and Teheran, or of rubles and dollars, Iron Curtains and Aswan Dams. You'll be feeling a kinship with nature that transcends the ordinary things of man. You'll notice there is a soft, cool breeze blowing up from the bay, and you will smell the wonderful mixture of scents compounded by seaweed and spruce. You'll hear the cry of distant gulls and you'll hear also the fluttering in the leaves behind you as the unseen bush-tit flits from limb to limb.

Back at the house, the missus will fry your trout a rich golden crackling brown in the sweet butter of our northern cows and you won't feel embarrassed at asking for more. After dinner you'll cock up your feet with me on the porch rail where we have such a nice view of the bay and the ocean bending to the West. You'll sit quietly in admiration of the colors in the setting sun and you won't even be thinking that the sun that is going to bed there before you is also just getting up at your house. You'll be just another guest who has been well fed in our home, a neighbor and a friend.

How about it, Mr. Mikoyan? May I come over to your house? And may I bring the missus? Perhaps Mrs. Mikoyan can show her a couple of kitchen recipes, too.

Or do you folks want to come over to see us, first? It's up to you, neighbor. You name it.

Sincerely,
Robert C. Henning
Editor, *The Alaska Sportsman*

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Battle To Sparkplug State Wildlife Federation

Turner Battle, Rocky Mount contractor, will serve as Executive Secretary of the N. C. Wildlife Federation beginning June 1, according to Thomas Reese, Hickory, president of the state federation. Battle is widely experienced in wildlife federation and wildlife conservation affairs, and has served as president of the Federation for two years. At a meeting in Raleigh when Battle was appointed, the Federation voted to engage a professional promoting firm to build up statewide membership in the Federation.

Rockfish Run Shows Improvement At Weldon

During May one of the best rockfish runs in the Weldon vicinity in years was reported by fishermen and fish biologists alike. If the heavy run continues throughout the season a large number of eggs will be hatched at the Weldon hatchery and fry distributed to supplement natural striped bass populations.

Waterfowl Habitat Planting Materials Available

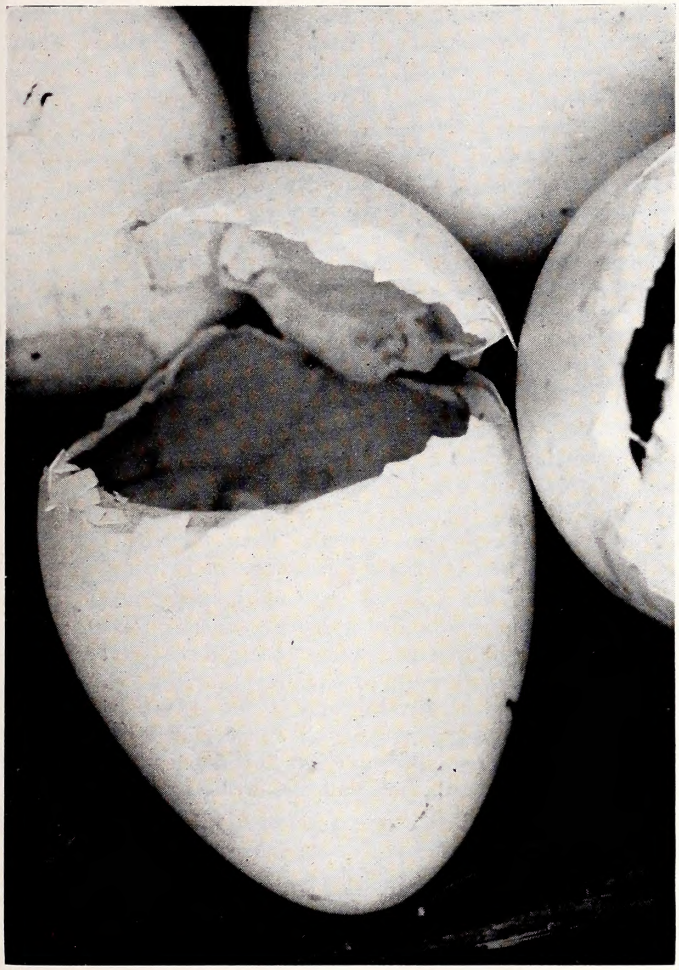
The Wildlife Resources Commission's Game Division has available a supply of seeds for planting to develop small waterfowl areas on private lands suitable for this type of development. Persons desiring the seed (brown top millet) should write the Wildlife Commission stating the number of acres to be planted. Information on waterfowl development will be provided by the Commission to applicants.

Hunting Seasons To Be Set June 8

The Wildlife Resources Commission will meet on June 8 to establish the 1959-1960 upland game hunting regulations. The regulations will be based on biological findings and the desires of sportsmen expressed at a series of nine public hearings held in May. The seasons for hunting doves and other migratory game birds will be established by the U. S. Fish and Wildlife Service at a later date. Public regulations of the upland game hunting and trapping seasons will be distributed to license dealers by August 1 so that copies may be issued to sportsmen on purchase of their licenses.

When EGGS Hatch

Photo Feature by Jack Dermid

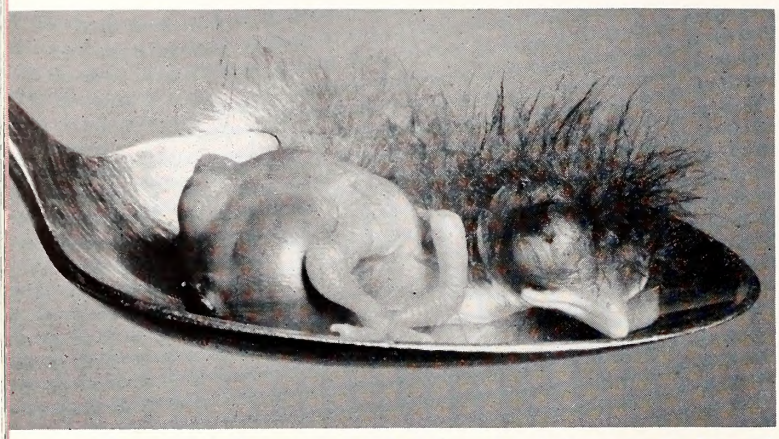


(Above) This enlarged quail egg shows the neat opening made by the hatching chick. An uncut portion of the shell provides a hinge between the two sections. The shells are usually left intact when the family abandons the nest.

EVERY spring and summer, millions of bird eggs hatch in the Tarheel out-of-doors. Out of the shells pop youngsters of all shapes and sizes. Some are blind, naked, and helpless while others are wide-awake, completely feathered with down, and able to leave the nest within a few hours. They tumble into the world in such diverse places as the top of a tree, beneath a tussock of broomsedge, or even in a tunnel in the ground.

But regardless of the species or other differences, all baby birds have one thing in common: they all possess an egg-tooth, a hard, temporary scale-like structure on the tip of their bills. This egg-tooth makes it possible for young birds to hatch, a feat that they must accomplish without help from their parents.

These quail chicks are less than an hour old. The egg-tooth, a scale-like structure, is visible on the tip of the bill of the chick on the right. It will be shed within two or three days. The youngster on the left is still exhausted from its laborious struggle from the egg.



Compare this newly hatched bluebird with a quail chick. It fits into a teaspoon and is blind, almost naked, and helpless.

When Eggs Hatch (Cont.)

Let's visit the nest of a bobwhite quail as hatching time nears. The hen has been successful in her job of incubation, and now after 21 days, the eggs show the first sign of the big event that is to take place. A small, star-shaped crack is visible on the side of each egg near the large end. The eggs are pipped.

Pipping occurs in quail eggs about 48 hours before they are to hatch and is caused by the action of the egg-tooth and increasing pressure exerted by the maturing embryo. The shell is no longer tough and resistant, but has become brittle. Even the elastic inner membrane has softened.

After pipping, little change occurs in the outward appearance of the eggs until hatching begins. The incubating female is aware of the life stirring within the eggs, however, for the cheeping of the unhatched chicks is plainly audible. Then, sometime on the 23rd day, the first egg begins to hatch.

The chick pushes upward at the point where the egg is pipped, its entire body coordinated in the muscular effort that forces the egg-tooth through the shell. A moment of rest is followed by another heave and another tiny cut is made in the shell. Thus by slow rhythmatical movements, perhaps 6 to 8 per minute, like a can opener used in slow motion, a door is cut around the large end of the egg. In time, only a small hinge holds the two parts of the shell together. Now with more heaves, some so violent that the egg rocks, followed by kicks and squirms, the door is forced open, and a wet and tired quail chick finds himself in the world, some 45 minutes after hatching began.

While the first chick was hatching, others in the nest began the process, and within a short time, the entire clutch of eggs is transformed into a family of downy chicks. The quail broods her new family in the nest for several hours while the youngsters dry and gain strength. Then the chicks are led away from the nest to begin the process of growing up.

In contrast to the precocial quail chick, the mourning dove is blind and helpless when it hatches and is reared in the nest for about the first two weeks of its life. There are many variables in the bird world at hatching time. In some species, the eggs may be pipped for only a few hours before they hatch. The hatching period for an entire clutch of eggs may extend for several hours, or eggs may hatch on successive days if the species begins incubation with the laying of the first egg.

But regardless of the circumstances of hatching, all baby birds have a zest for life, and if their habitat is suitable, enough of each species will attain adulthood to insure the perpetuation of the races, provide a harvest for the sportsmen, and add beauty to the countryside.

Blind and helpless upon hatching, baby doves remain nest-bound for about two weeks. They are raised on a regurgitated mixture of "pigeon milk" and seeds. This dove family is using an abandoned robin's nest. The nestling is about a week old.

Wood ducks hatch wide-awake and feathered with down. They are brooded in the nest overnight. At the hen's call the next morning, they climb to the entrance of their nest in a hollow tree or artificial nesting box (shown) and jump into the world.

(Right) While their nine brothers and sisters remain under the hen's warm breast feathers, these day-old wild turkeys explore about the edge of their nest. The hen watches them with a protective eye.

a few hours old, this purple
ule is already treading over
ly pads of Lake Ellis, a trait
cteristic of its long-toed and
ntly colored parents. The only
the youngster sports is a red
around the base of its bill.

TACKLE and TECHNIQUES FOR 1959 FISHING

By Duane F. Raver, Jr.

Federal Aid Coordinator, Fish Division

IT seems to me that fish are getting smarter every year! At any rate it takes something new to fool them when each new spring rolls around. Of course, many of the standbys stay in the bag of tricks and produce year after year; but I actually suspect that fish get wise to the same old thing and don't latch on as often. The new crop of bass or trout dart out and snatch most anything—not so with old scarface. We are always in search of the surefire lure or the never-fail fishing method. If I know fish it'll never happen. But fish and fishermen being what they are—creatures of mystic ways —they all like to look over the latest in tackle and new techniques.

Although it's been around many years, there's a type of fishing that has aroused much new interest of late. And this is "ultra-light" spinning. It centers around miniature models of standard spinning gear and uses monfilament lines of 3-pound test or less. The rod is generally 4½ or 5 feet overall length, either one or two piece construction. Actions vary from fairly firm to quite limber. The handle is 8 or 10 inches long and has a slip-ring reel seat. To be appreciated, these statistics must be compared to conventional spinning rod specifications of 6½ to 7½ feet in length, weighing twice as much and having 12 to 15 inch handles. The little sticks are built to handle lures of from 1/20 to ¼ ounce and are strained to accommodate ⅜ ounce. Several tackle companies offer these diminutive rods including Rockland Tackle Co., Suffern, N. Y., Harnell Tackle Co. and the Conolon Co.

Reels for hair-line fishing are remarkably well built and durable but are quite expensive, so plan to pay from $30.00 to $40.00. Three fine examples of these palm-sized reels are the Alcedo "Micron" imported by the Continental Arms Corp., the "Mignon 33" handled by Rockland Tackle Co., and the Langley "Spinlite" 852B manufactured by the Langley Corp. Line capacities run from 150 yards of 3-pound test to 260 yards of 4-pound test.

Now, the reasoning behind this ultra light gear is (at least theoretically) more sport. The point might as well be made here that this tackle is extremely specialized and suitable only under selected conditions. We're not knocking sporting fishing tackle, but it's well to make it clear that threadlining is *not* for general use in the average weedy, snaggy farm pond. This is fairly obvious when you consider the fact that with 2-pound test line stopping a 3-pound bass is going to be next to impossible. Even a 12-ounce bluegill can wrap himself around a stump before he's stopped. Of course, similar problems are evident with a light leader on a fly rod, but at least you have some measure of control here; with the light drag of the tiny spinning reels, pressure must be applied manually if at all and then the light lines often part. If you could depend on only half-pound bluegills eating your tiny spinner or plug, difficulties would be minimized. A compromise is the light 5- or 5½-foot rods and small reels using 4- or 5-pound test line. And even here it helps to have plenty of room to play big fish. But it's an interesting technique and well worth a try.

Spinners always fit into the angler's arsenal. From top to bottom are four of the author's favorites: Abu-Reflex, Herter's Nordic, Herter's Pepps, and the Mepps. All are fish-catchers.

Photo by Jim Lee

To cover the rest of the new fads and fancies of the tackle world would undoubtedly take the rest of this magazine; we'll just mention a few highlights that are strictly news for '59.

The Langley Corporation has introduced a complete line of very nice looking, graceful-feeling rods. So far, I haven't stream-tested any, but it looks like quality and service as well as appearance are here in large measures. In looking over the line from the lightest fly rods to the sticks that tame the surf, I couldn't think of a fishing chore that these rods couldn't handle. The prices may scare out the twice-a-year fishermen, but the man that knows tackle will appreciate the quality.

The balance of a fine fly rod and suitable line is a joy to feel. The most expensive rod is pointless unless matched to the right line. If your casting isn't all that you think it should be, do some serious thinking and experimenting this spring. The rod manufacturer will be helpful in recommendations, but it may take a line or two before the right combination can be found.

South Bend Bait Company has a fly line called the Banshee that has the feeling of fine satin. True, you can't fish with satin, but my guess is that the Banshee will perform as nicely as it feels. Proper weight distribution is important in a fly line, but check the "friction free" qualities, too.

Ordinarily spring fishing calls for spinners somewhere in the program. The last several years have seen quite an upswing in the use of these glittering fish-foolers. All the old favorites are back this year with at least one or two notable new comers. The Garcia Company's Abu Reflex spinner really came into its own on the white bass a couple of years back; now Garcia has introduced a new one called the Abu Hi-Fi. It's made in the ¼ ounce size only and the spinner blade has cupped openings which apparently give it the erratic action. It looks good for bass, crappie, big bluegills and even trout. Speaking of action, although not of spinners, the Hildebrandt Company has come up with a real dilly in their new Bottom Dollar. It's like nothing you've ever seen before and if it doesn't scare 'em to death, it should catch bass and walleyes. One angler described its action as that of an underwater Jitterbug! You'll have to see it to believe it!

This seems to be the year for deep running lures. Heddon offers a new one called the Sonar that has depth control and action control. It's a tricky looking lure and certainly worthy of a try.

In the spring the very outermost fringes of a pond warm up first (and cool off first, too) and you may find bass cruising in a foot or two of water right at the shoreline. This usually happens from 10:00 a.m. to around 2:00 p.m. These areas are rough to fish because of snags, weeds, etc., and short of a surface plug you must rely on a weedless lure. The Johnson Silver Minnow has been a faithful lure for many years under these and other circumstances. Now Johnson introduces a pearl finished spoon that may out-perform its silver plated brothers. I prefer a short pork rind and a "bouncy" retrieve.

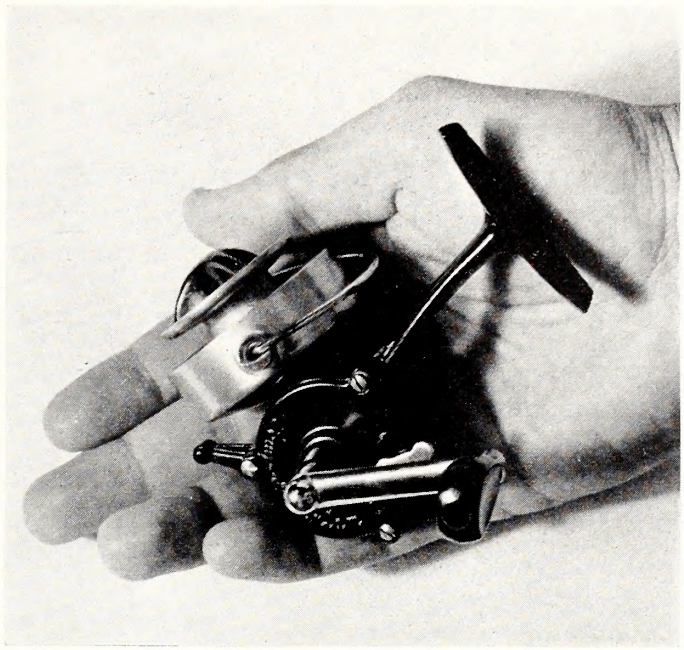


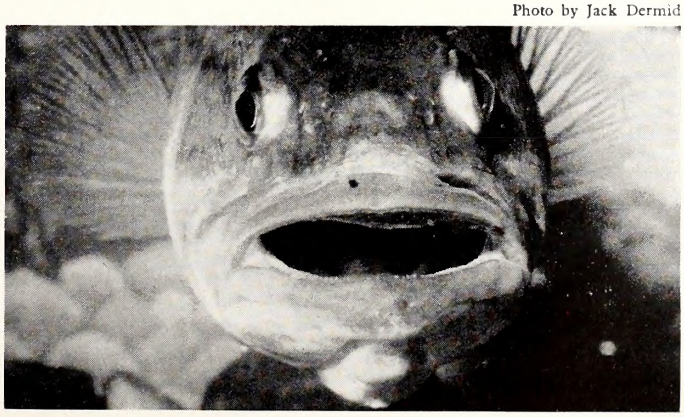
Photo by Jim Lee

Here's an example of the ultra-light spinning reel—a precision product that fits snugly in the fisherman's hand. A good reel for your hair-line fishing, according to the writer.

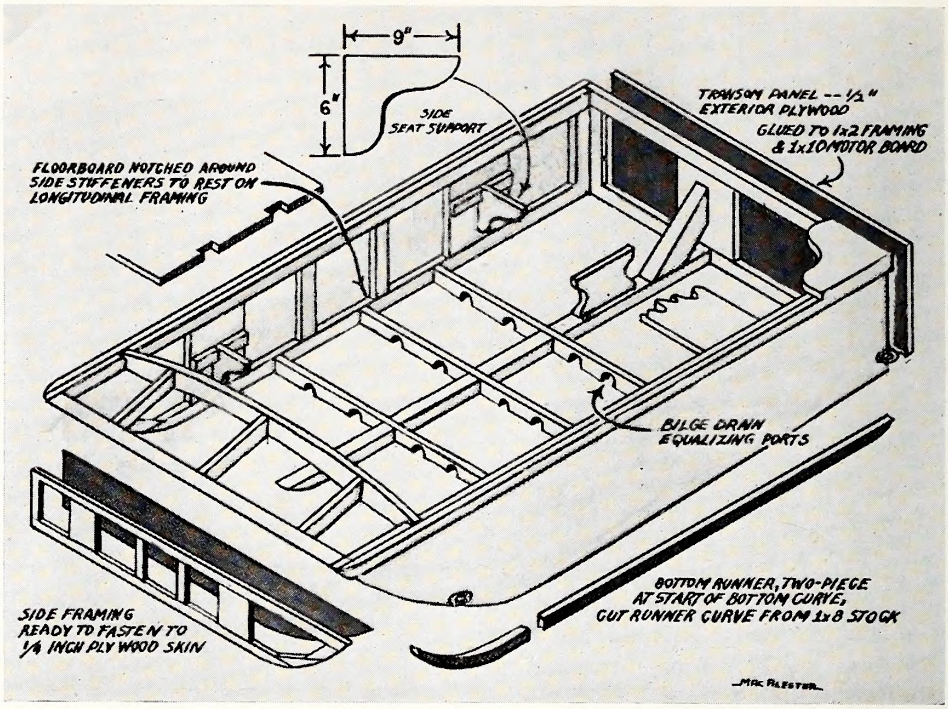
Bluegills, spring, and the fly rod make a very pleasant trio. Trouble is the old copper noses can be a trifle on the choosy side this early. The best medicine I've found is a drab-colored wet fly—about a number 8. You'll find yourself switching flies until you find one that satisfies the whim of the bluegill and this task has been made easier by the Lisk Fishing Tackle people of Greensboro. They have come up with a compact fly box that fits on your belt and holds around four dozen flies. The whole rig opens out quickly to put a selection of flies at your finger tips. It's constructed of light-weight, durable aluminum and the lures are held in firm, plastic foam which lines the box.

Ready to go? Get the best tackle you can afford, care for it properly, and use it often. The fish are there; the rest is up to you.

Photo by Jack Dermid



Looking for an inexpensive boat for hunting and fishing? The Swamp Cat may well be your onswer. This is not o fancy run-obout for water skiing ond fost cruising, but o work boot designed to take you there and bring you bock. Following a number of requests, here is o croft for the home builder.



The Swamp Cat

By Paul MacAlester

(Reprinted from Florida Wildlife)

SHE'S part alligator, part water buffalo—with a touch of mud turtle thrown in just for good measure.

She'll never win a nautical beauty prize; not with her stumpy, slab-sided look and her bluff, shovel bow.

But she's easy to build, easy to handle and she'll go wherever there's enough dew to keep the grass damp.

She's the Swamp Cat.

Nine and one-half compact feet of carrying room, big enough to take three husky men aboard and ram her way across a four-inch deep mud flat.

This Ugly Duckling will waddle her way through marine grass and reeds thick enough to walk on; where a regular boat and kicker would give up in despair after 10 yards.

Wading through thigh-deep pepper grass and reeds at Lake Okeechobee used to get mighty tough —especially if the ducks were to be found a mile or so back in from the open water.

Try it some time—especially with an extra load of shells and a sack or two of decoys. Used to be, it was a long hike back to the big boat (16-foot) for more shells or a sip of water. Now we take it all right in with us.

The Cat's weight (125-150 lbs.) might be a mite too hefty for some, and she can be built lighter. But if you want something that can take the pounding of a high-speed tow across choppy water or ram across snags, then you want her braced so she'll stay together.

Low on the list as far as looks go, "the cat" will go over anything "damp," is eosy to build, eosy to hondle.

A pair of trailer rollers along one gunwhale make loading and unloading a simple job for two ordinary men—either from a cartop or nested onto a larger boat for road transport.

The Cat got a rough maiden voyage. The lake was kicking up plenty. We stowed everything aft in her, small kicker, decoys and gas can. And, oh yes, a few strips of burlap for camouflage. After experimenting a little with the length of the tow rope, we got her just behind the "V" wave in the big boat's wake. She behaved like a perfect lady. Once in a while, a swell would sneak into the wake. Her broad shovel-bow just shrugged its way right up over the swell, keeping her on a plane without a hitch.

Building the Cat is one of the nicest things about the entire project. There are no bevels or complicated curves; she's just a glorified mortar-mixing box.

What she'll cost you depends on how fancy you want to get and how long you want her to last. Using the best ¼" marine plywood and brass or copper hardware, she'll run about $70 to $75. No special tools are needed, outside of the usual hand tools, a power drill and an electric jig or "Saber" saw.

And you'll be able to get your money's worth out of her—year-round. After using her in the fall for swamp hunting, there's spring and summer

fishing. Tow her on big water, and use her to get way back up on the grass flats or across sand bars for the big fish that you never could get near with your big boat. Or haul her into the woods on top of your car to that little-known bass pond.

The Swamp Cat can be paddled or poled, but she's at her best when combined with a weedless 3-h.p. kicker—either Evinrude or Johnson. These little brutes can push and shove all day in soupy mud or thick grass—they never know when to quit. And they add only 35 pounds to the weight of the boat. Pound for pound, they're the pushin'est thing on the market.

Ready to build the Cat?

First on the list are the two 4 x 10 sheets of ¼" plywood.

One piece will be used "as is" for the bottom. The other will be cut into 20-inch strips for the sides. Take the bottom piece and wrap it in burlap. Lay it in a shady place and turn the hose on the burlap. Keep it wet for about two days. This will make it soft enough to curl up at one end without too much strain.

We're going to turn up one end—just like the front of a sled.

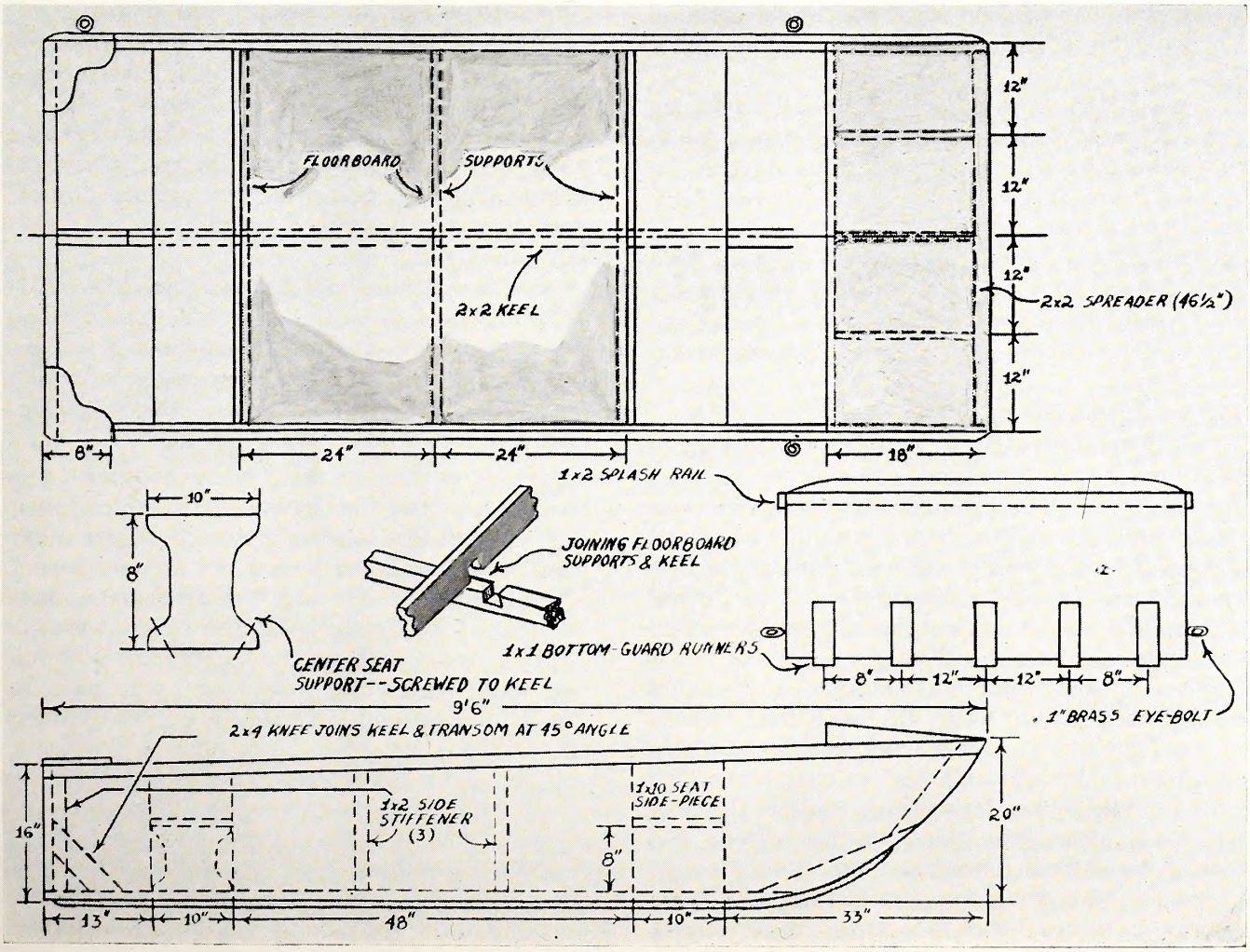
Now take your 20-inch-wide side pieces and mark them at 16 inches on one end. Draw a straight line from here to the full width of the 20-inch bow end. That's your gunwale line. On the bottom line, come back about 33 inches from the bow and swing a gentle arc up to the bow. Mark and cut the first piece. Trace it onto the second for an exact duplicate.

Measuring along the bottom line, trim the side pieces to a 9'6" length. Now lay on your 1x2 framing—along the top and bottom lines. Trim them to fit, slop on some Weldwood powder glue and nail or screw to the side panels from the outside. Using 1x6 or 1x8 stock, cut and fit your curved bow framing, flush to the gunwale.

Now lay in your side stiffeners and 1x10 seat-support panels. One stiffener should be set in 1¼ inches from the stern end of the side panels. The longitudinal framing, top and bottom, should stop 1¼ inches short of the stern, too. This will leave room for setting in the transom. Now take two scrap 2x4's and cut them to 46 inches. Take the two side panels, gunwale edge down, and fasten the 2x4's in between. This will provide proper spacing for the side panels while you're attaching the bottom.

Next cut the bow-spreader—a 2x2, just 46 inches long. Set this in between the sides at the bow, on an angle, to follow the bow curve. Use plenty of glue and 2-inch screws from the outside.

Now we're ready for the bottom. This is joined to



the bottom with phenol "Waterproof" glue, which is a powder and catalyst mixed together. Apply to the bottom and sides where they will join. Now screw the bottom onto the bow-spreader—all the way across. Then gently bend the bottom to the curved sides, fastening it to the reinforcing framing with either screws or barbed boat-nails. The nails are easier and quicker. The main thing is to hold the bottom and sides together under pressure until the glue hardens (give it about two days for good measure).

Next comes the inside keel piece or lengthwise stiffener. We used a 2x2, but a 1x2 could be used to keep weight down. With the jigsaw, curve one end and plane until it blends into the bow curve inside the boat. Cut it so that it is 1¼ inches short of the stern. Then mortise the keel for the floor board supports (1x2). Apply glue and screw supports to the bottom from the outside.

All screws should be countersunk and filled with a good marine filler like Duratite.

Now for the transom. We scrounged around a building job and "liberated" a piece of ½-inch exterior grade plywood, used for concrete forms. This was cut 16x47½. Then it was framed around all four sides with 1x2. A piece of 1x10 was fitted in and centered for the motor board. As usual, the framing was glued and screwed tight from the outside.

The transom is now daubed with "Waterproof" glue—sides and bottom—and is slipped into place. It is then screwed to the sides and bottom. The knee is made from a 12-inch piece of 2x4, cut at 45-degree angles at either end. It is glued and screwed to the transom motor board (from the outside) and to the keel, with three-inch screws.

The floorboard supports are cut, mortised and fitted in place with glue, and screwed in place from the outside—bottom and sides. Be sure to cut out the half-moon drain equalizing holes, before setting in the floorboard supports. Now cut the seat side-supports from one-inch stock, with 1x2 cheek-pieces on either side. Glue and screw in place from the outside. The center seat-supports are cut from 1x10 stock and are glued and screwed to the keel.

For the forward deck, cut and fit a curved rib, notched at either end to fit over the gunwale stiffeners. Set in three fore-and-aft supports, using glue and screws for fastening. This is covered either with tin-sheet or window-screening, coated with plastic roofing patch.

The five bottom runners are made of 1x1, ripped from one-inch stock. They are measured to run from one inch short of the stern to the point where the bottom breaks into a curve. The curved sections are cut from 1x8 stock, trimmed to follow the bow curve. Both pieces are glued to the bottom and drawn up tight from the inside with screws.

Now add the outside spray rails (1x2) and glue and screw in place. Cut out the stern-corner pieces. Glue and screw to top of sides and transom.

The floorboard is one 4x4 piece of ¼-inch plywood. Trim in one direction to 47½ inches. Notch along sides so that floorboard fits around side stiffeners and rest on the side framing. Paint bottom of inside before fastening down floorboard with screws. Cut two seats from 1x10 stock (46 inches long).

Hull can be given a coat or two of sealer (Firzite or Wonder Seal) before giving it two or three coats of marine enamel (dark green). Finish can be topped off with a coat of duck boat brown (flat finish) if the boat is to be used for hunting. After seats and floorboard have been painted, fasten in place with screws (no glue).

Measure up four inches from the bottom line and install four one-inch brass screw eyes, running them into the holes before running in the screws. This will prevent the entry of any water.

The screw eyes will serve a number of purposes. The front pair will serve as towing hooks when a rope bridle is attached to them. A line from this bridle to the towing boat will cause the Cat's bow to ride high and plane easily. A length of ½-inch rope can be passed around the hull, through all four screw-eyes, with a two-foot length of shock or Bungee cord spliced in. Reeds or branches can be stuffed under this line to convert the Cat into a duck blind.

The hooks are also used to fasten the Cat to the top of a car or on top of another boat for road transport. Quarter-inch rope is passed up and over the hull, fore and aft, through the screw-eyes. The loose ends are fastened to the car bumper or boat trailer frame with either adjustable straps or turnbuckles, fastened to large S-hooks.

We took an ordinary pair of car-top carriers and converted them into a dual-purpose carrier. This particular type of carrier had suction cups fastened to a 1x3 oak slat. Pieces of 2x4, turned on edge, were glued and screwed to either end of the slat, long enough to span the gunwales of a larger boat. The extensions were notched to fit the slant of the gunwales and were then padded. Then the two carrier slats were joined permanently with parallel spacers on either side. These spacers were made long enough to allow the main slats' suction cups to fit flush on the car roof.

Two rubber trailer rollers were added as optional equipment on one gunwale. The rollers were spaced so they would ride on the cartop carrier's side-to-side slats. To load or unload, two men pick up the Cat, bottomside up, and set the gunwale rollers on the carrier slats. The Cat is pushed across on the rollers until it is centered. Then it is lashed down.

With the two-way carrier, the Cat can be hauled on the highway, lashed to the big boat. Once at the hunting or fishing spot, you're free to do some scouting on roads in the area by shifting the carrier and Cat to the top of your car.

Is Your Dog Immune?

RABIES OUTBREAK REPORTED IN EAST

AN explosive epizootic of rabies involving three southeastern counties has clearly demonstrated what can happen in any community when rabies is introduced among a number of non-immunized dogs.

The first two cases were confirmed on February 17 and within four weeks eight additional cases including two cows were laboratory confirmed. Only one of the eight dogs had been immunized and it was immunized while recovering from an infectious disease and in poor physical condition.

The epizootic was centered around Maco (Brunswick County), Acme and Delco (Columbus County). A number of dogs and cats exposed to rabid animals have been destroyed by county dog wardens in this area. It is hoped that this action along with increased stray dog control activity and intensified canine immunization programs will soon bring the outbreak under control and will prevent its spread.

Best friend—or worst enemy?

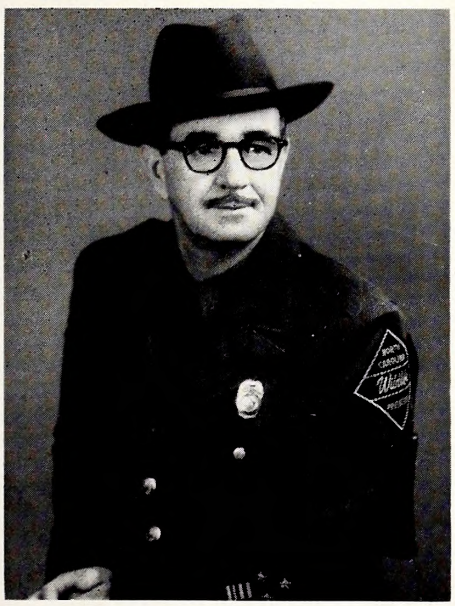
How costly this disease can be is demonstrated in several ways. First, the State Laboratory of Hygiene has dispensed nearly 46 complete human antirabic treatments to physicians in this area. No price tag can be placed on the mental anxiety, physical discomfort, and possible hazard that the patient undergoes during treatment; however, it has been conservatively estimated that a complete series of treatment cost approximately $100.00 each (or $4,600 for this area). Second, losses among livestock have been confirmed and often the majority of such losses are not reported.

A rabid fox was laboratory confirmed from Bladen County April 1. This could mean serious trouble.

On March 19 a raccoon jumped on the front porch of a Guilford College, N. C. woman and bit her hands, finger and legs several times. Neighbors pulled the raccoon from her, but before it could be shot, it attacked her again. The animal was confirmed as rabid by the State Laboratory of Hygiene on March 20. An investigation by Dr. E. H. Ellinwood, Guilford County Health Director, revealed the coon to be a "pet" which had escaped from its pen. It was learned that the coon would kill large rats. The owner has four coon dogs, but denied that coon had been used to train his dogs.

—Veterinary Public Health Newsletter

PROTECTOR OF THE MONTH



Robert F. Logan

Robert F. Logan was born in Patchogue, L. I., New York, on July 28, 1902. He received his education in the public schools of Durham and Salisbury, North Carolina, and attended the Wildlife Protectors' Training School at the Institute of Government in Chapel Hill, North Carolina.

Mr. Logan joined the Department of Conservation and Development, Game and Fish Division, in 1938, and served as supervisor of Districts 5 and 12 during that time. A pioneer in wildlife law enforcement, Mr. Logan has seen our conservation program progress notably through the years.

He is married to the former Beulah E. James, and they have three children. The Logans are members of the Presbyterian Church in Chapel Hill, North Carolina, where they reside.

ENFORCEMENT RECORD FOR MARCH

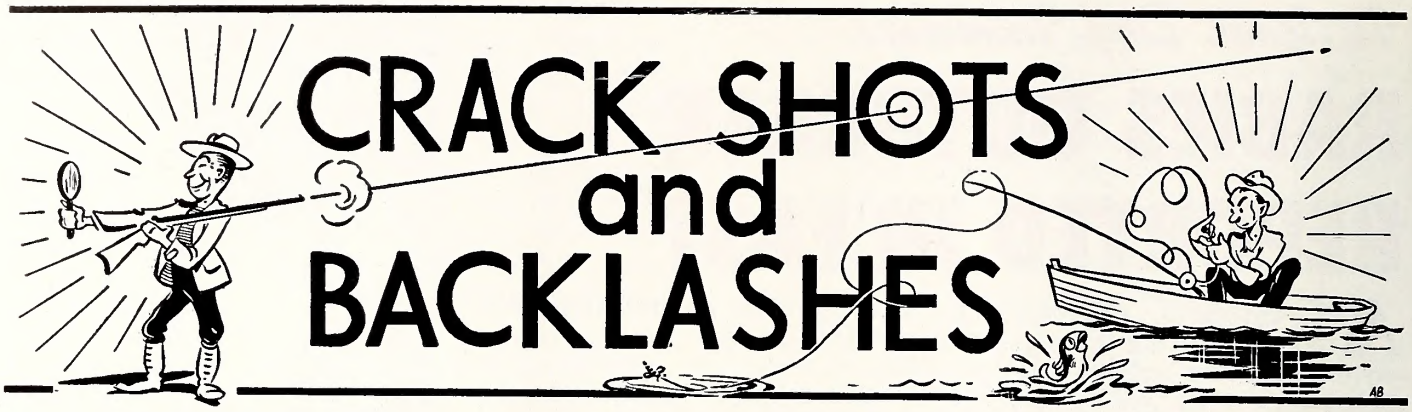
Persons checked	14,866
Total prosecutions	243
Total convictions	229
Total cases not guilty	7
Total cases nol prossed	7
Total fines collected	$ 1,080.00
Total costs collected	$ 1,680.85

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is there a special bow hunting season in North Carolina?

ANSWER: According to the 1959 Hunting & Trapping Regulations, bow hunting is allowed fourteen days immediately preceding the open gun season, provided bag limits are observed. Hunting license requirements apply to bow and arrow hunters.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

The National Wildlife Federation has recently come out with a 60-page book entitled "Our Growing Water Problems" by R. G. Lynch, who has thirty-seven years with the Milwaukee Journal under his belt. Lynch has won a number of national awards for his conservation writing and deserves another one for this book.

Although North Carolina is blessed with an average annual rainfall of just a little less than four feet, its water problems are increasing in direct ratio to its economic development.

But North Carolina is not alone. Here is Lynch's summation of some national water problems:

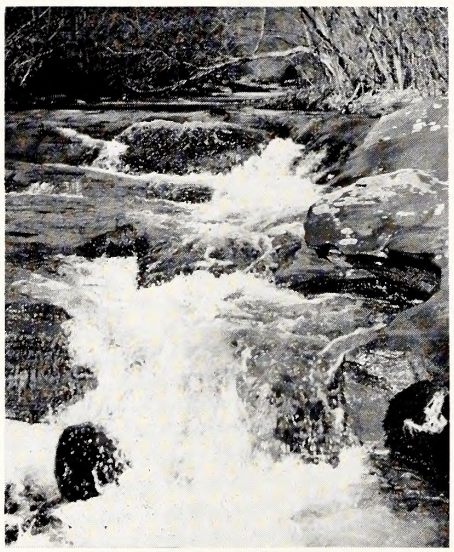
"In New England and the southeast, particularly, reservoirs are drawn down for power generation without regard for fish. (This is not entirely true in North Carolina. Water levels for rockfish spawning are granted at Kerr Reservoir. Both Duke and Carolina power and light companies hold water levels in reservoirs for bass spawning—Ed.)

"In the southwest 31 ranchers have filed claims to hundreds of water holes on public lands, which threaten to hamper or even exclude public uses.

"In Arizona, the fish and game commission cannot acquire water rights even by buying submarginal, unused farm land; the water still belongs to agriculture. (In arid Arizona, water is critical to the conservation of upland game. Two or three water holes in an area may determine whether there is a game population.—Ed.)

"In Idaho, irrigators recently refused to permit releases of water from a reclamation reservoir to maintain flow in a trout stream.

"In California, San Bernardino County has to provide water for a National Forest public camping area because the Forest Service has no right to the water even though it is protecting the watershed.



"St. Louis fish dealers have to get fish from the Tennessee River because sewage and garbage pollution have ended fishing for miles down the Mississippi River, and the Missouri below Kansas City is just as bad.

"On the Atlantic and Pacific coasts and the Great Lakes, bathing beaches have been unsafe at times due to pollution.

"In Mississippi Sound, oyster reefs have been silted up by the Pearl River, due to erosion of drainage ditch spoil banks, just as oyster beds in Chesapeake Bay were buried by the Rappahannock's sediment.

"Aquatic life cannot exist along the south shore of Lake Erie where the Maumee, the Black and the Cuyahoga rivers have deposited their filth miles out on the lake bottom.

In the Dakotas, duck producing potholes have been dried up by drainage, and bayous in Louisiana which used to flow all year long now dry up after drainage ditches rush the water off the land.

"In the arid and semi-arid western states, irrigators dry up rivers. In the east, farmers are pumping out thousands of little lakes and streams.

"On the western Louisiana coast, rice growers want to turn Vermilion Bay and Lake Calcasieu into fresh water impoundments, which would destroy commercial and sport fisheries. (Rice, incidentally, is a 'surplus' crop. —Ed.)

"These are water problems of far greater importance to the nation than the interests of men who want to use water to make a dollar or abuse it to save one.

"It should be pointed out that water is such a 'live' topic that changes might occur at any time in some situations touched on in (this) brochure."

The rest of Lynch's book touches on specific water problems, and points out that water conservation is everybody's problem. Write to: The National Wildlife Federation, 232 Carroll St. N.W., Washington, D. C. for copies.

* * * *

Quotable quote: "We are not getting all of the government we are paying for—and it's a good thing we aren't."

Puerto Rican and U.S. big game anglers have chosen up sides to pull off a blue marlin tourney June 6-11 off Cape Hatteras. We are betting on the U.S. waters to produce more marlin than our Puerto Rican neighbors.

Banded Bird

DEAR SIR: The following information is furnished re a banded bird which was recently killed by a quail hunter in my district. The band was given to me by the wildlife protector for the county where the bird was killed. The bird was described to him as a small, dark-colored bird which had dark meat. I assume that it was a Coturnix quail.

The band number is 7937. The bird was taken on December 6, 1958 one mile west of Shine Crossroads in Greene County. Shine Crossroads is near the town of Snow Hill. If you should desire any further information I shall be happy to try to obtain it for you.

The bird was killed by Mr. Joe A. Stevens, Route 3, Snow Hill. Mr. Stevens desires to know when and where the bird was banded. I too would appreciate receiving a copy of this information. JOHN C. OBERHEU GAME BIOLOGIST DISTRICT TWO, KINSTON, N. C.

Members of the Wildlife Resources Commission pictured while discussing hunting regulations for 1959-60 are, left-to-right: Crouse, Bridger, Beal, Vice-Chairman Carr, Chairman Briggs, Director Patton, Stewart, Secretary Massie, Woodhouse and Connelly.

DEAR MR. OBERHEU: Thank you very much for sending us information on Band No. 7937 which was recovered from a bird killed on December 6, 1958, one mile west of Shine Crossroads in Greene County, North Carolina.

This bird was a Coturnix quail and was released in New Kent County in the fall of 1958. R. H. CROSS, JR. CHIEF, DIVISION OF GAME, RICHMOND, VIRGINIA.

Steve Conrad of the Department of Mineral Resources photographed this three-foot common water snake in the act of swallowing a ten-inch rainbow along the north fork of the Catawba River in McDowell County—fancy meal for a snake.

Wildlife Overseas

DEAR SIRS: As a former professional forester (University of Montana) and exranger I'm amazed at the format and content of such a publication by the State of North Carolina. As a matter of interest I'd like to know what your charge would be to send a year's subscription to a hunting companion of mine in Mainz, Germany. If you will let me know perhaps I can afford to order another subscription. CAPT. ROBERT G. FLEET, FORT BRAGG.

No extra charge. *Wildlife* goes to many foreign countries—even behind the Iron Curtain.

Channel Bass

DEAR SIRS: In your April issue of Wildlife you printed a story about channel bass. I think you have made some statements that should be changed. The main one you say the large ones are good only for fertilizer. If this was the writer's personal opinion he should have said so because this fish is classed as one of the most excellent fish to eat regardless of size. This opinion is shared now by most everyone who eat them, even the sportsman now take them away to eat.

This magazine is read by lots of people and the remarks you made would only cause them to throw the fish away if they were not familiar with it after they had weighed and measured it and kept it to show for awhile, until they tried it.

I run an ice and fish house and it used to be a fisherman caught a channel bass, and after his picture was made he gave it away. Now they bring them in, have them dressed, and what they do not consume fresh they freeze for later use.

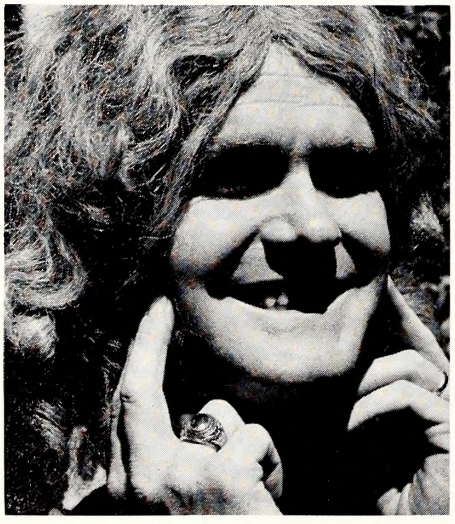
You also state that you have seen them stacked as cord wood at Oregon Inlet. This is true but they weren't put there by a commercial fisherman. It was done by so-called sport fishermen who were not sports enough to throw them back. Some sportsmen, one of the greatest Clinton Toms of Durham, used to catch them by the truck load and hire someone to haul them up to the communities and give them away. He gave people many a good meal and was always remembered for it.

You should also remember that we have at different times had canneries set up to can this fish. The last one was at Wanchese by Bob Scarborough and like the others he had to close due to the shortage of this fish.

Sirs, I do not think this sounds like a fish good only for fertilizer, and I can have these statements verified by thousands for you. JETHRO MIDGETT, NAGS HEAD.

We appreciate Mr. Midgett's comments, and are glad to learn that channel bass are no longer being wasted.

Lucretia in Person



DEAR SIRS: Here is the picture that you asked for some time ago. Now I have another question. My attic is full of squirrels and I want to know what to do about them. LUCRETIA PLYMPH, WAKE FOREST.

We suggest, Lucretia, that you be thankful you only have squirrels in the attic and not bats in the belfry. The best thing to do is learn to love them—and keep your head covered at all times.

Rabbit Ears

DEAR SIRS: Enclosed is 50 cents for my subscription for one year.

I was very much interested in the rabbit on page 14. His ear appears to be on backwards.

I have been hunting for a number of years. Enjoy your magazine very much. JAMES H. GLASS, BUENA VISTA, VIRGINIA

Rabbits can swivel their ears into almost unbelievable positions. A check in Ernest Thompson Seaton's sketches showed rabbits with ears in the same position as the one shown in *Wildlife*.

Cape Hatteras Vacation

DEAR SIRS: I am planning on a camping trip to Cape Hatteras this summer. Is it possible for a member of your staff to answer some questions concerning such a trip?

If not, would you be so kind as to forward this letter to the state agency responsible for this information. If this is not compatible with your setup, please return these questions.

First of all, please send me any pamphlets you have concerning camping facilities in this area, availability of water, camp sites, etc.

One important topic I would like to question you about concerns the weather and insects in the area.

What is the best time of the year "weatherwise"—from what month to what month?

What is the best time of the year in respect to insects or other varmints? In other words, is there a certain time of year that the cape is unbearable because of pests? I have been camping in one particular area where black flies were absolutely intolerable.

One other question the most important I might add, is concerning fishing in the area:

What are the restrictions or fish law? What type of tackle, bait, etc., do you recommend for an individual not equipped with a surf casting outfit?

Is there a need to make reservations ahead of time? If so how far?

I certainly would appreciate any help you might give me concerning the foregoing questions. EDWARD H. CANN, JR. LYNCHBURG, VA.

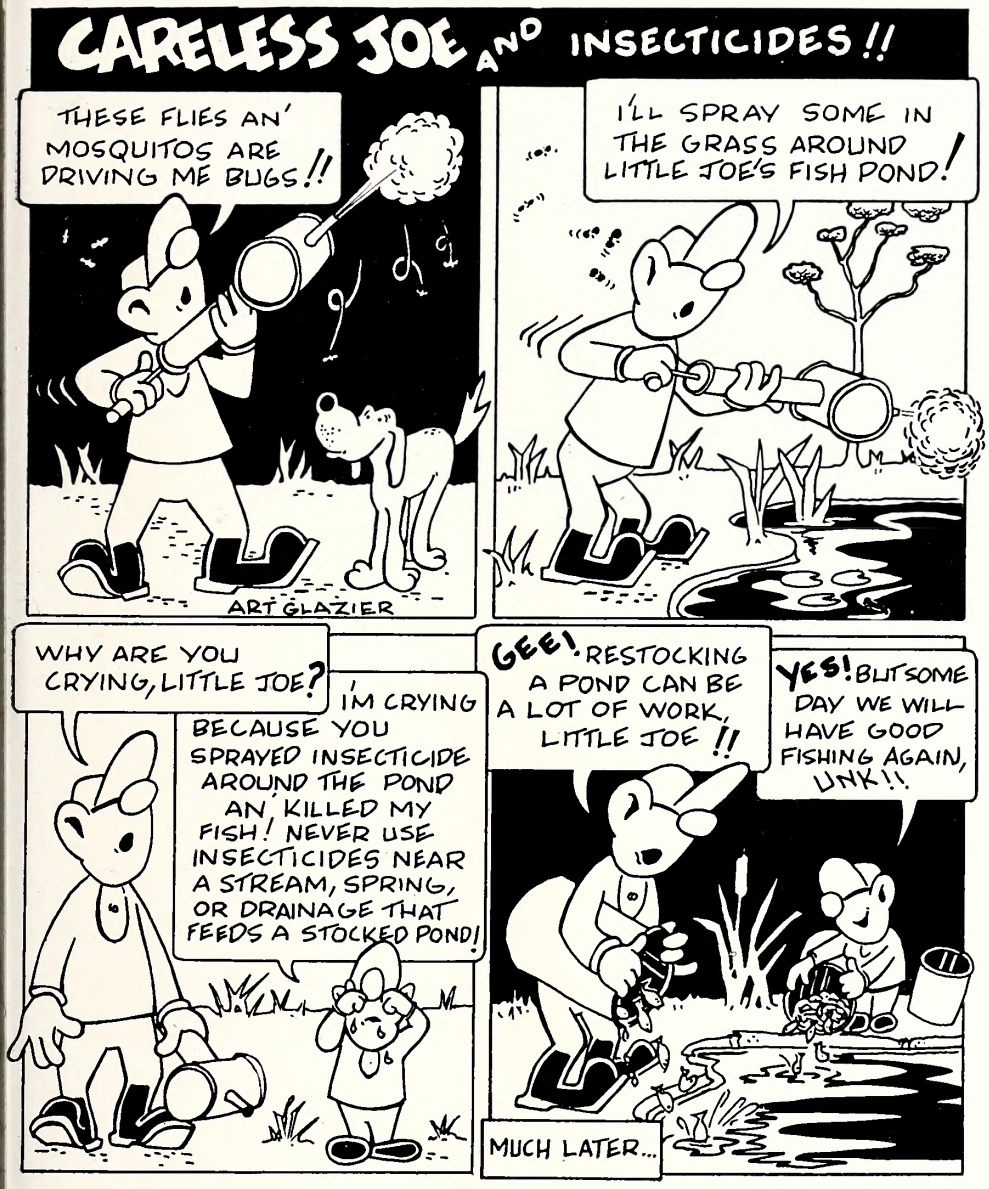
Cape Hatteras National Seashore Park offers excellent camping facilities with water and toilet accommodations. The month of May, early June, September and October usually have the best camping weather, but one takes chances on weather anywhere.

There is good surf fishing along Hatteras, and charter boats are available at Oregon Inlet and the Hatteras marina. No licenses are needed for salt water fishing. Some fresh water ponds on the island offer bass and bream, and one- and five-day nonresident permits are available. Write to the U. S. Park Service, Manteo, or the Dare County Chamber of Commerce, Manteo, for full details. Have fun and good fishing!

Mountain Trout Program

DEAR SIRS: I recently noticed that some 55 tons or 200,000 creelsize trout are to be released in mountain trout waters this year. I'm sure that an interesting story must lie behind these bare figures which should prove interesting to all fishermen in the state. Such a report might include statistics on the number of trout licenses sold in a given year, number of man-days spent on managed waters vs trout taken, and such other information as may be available in support of the stocking program. Figures on the cost of rearing and stocking so many fish and perhaps a feature article on the mechanics of the operation might also be published. I have often heard critics of the trout stocking program claim that stocked trout are not worth catching either from a standpoint of sport or food value until they have been in the streams for at least several months and that the survival rate is rather low compared to that of stream-reared trout. Perhaps you are in a better position to answer these criticisms than I.

Also I understand that most enlightened conservationists have concluded that it is virtually worthless to stock quail and other small game, but that they will be restocked naturally wherever suitable habitat is provided. The same argument appears to hold for deer after the initial breeding stock is established. When confronted with this argument, the layman may be inclined to ask whether the same reasoning might not apply to restocking of trout. He might ask whether money presently being spent in artifically maintaining the trout population might not be better spent in improving trout habitat on present trout water and reducing pollution on potential trout water. He may argue, perhaps not rationally, that the Wildlife Resources Commission is acting as an expensive fish market which is for all practical purposes selling 110,000 pounds of



trout to a relatively small number of the state's anglers. Some may be reminded of shooting preserves where pheasants are released as a live substitute for clay pigeons or certain commerical trout hatcheries where one can catch his own trout from a small pool or short stretch of stream at so much a pound. One wonders if trout fishermen who ostensibly take pride in their skill and sporting tackle have become so limit conscious that they prefer 10 freshly stocked "creel-size" trout to one of 20 inches which has grown to maturity in the stream and which provides a real challenge to their ability to hook and land. If so, why not sell the fish by the pound at the hatchery? It is claimed by some that the present operation is like a lottery and that chances on the same fish are sold repeatedly and that the unskilled fishermen who buy permits to fish a little around picnic and camping areas are helping buy trout for a few experts who take home most of the fish. If, however, the trouting clan are willing to practice what they preach and make trout fishing the sport it is said to be in the romantic fiction often printed in leading sports magazines, might it not be wise to reappraise the whole trout program with a view toward returning to sport and closing the meat market?

You are, of course, familiar with the new plan recently introduced in the Great Mountain National Park. Under this plan, fishing is allowed all year on certain streams, but no trout under 16 inches in length may be kept. I do not know how much popular support there would be initially for such a radical change in policy, but you have been successful in selling an enlightened program for taking doe deer. All who fish for sport should certainly support it since they would find more big trout. For those who prefer small tame trout, it might be possible to maintain a few fenced-in stretches around picnic areas with creel-size trout and maximum saturation. It should be unnecessary to stock the 16-inch water after initial stocking in water suitable for trout. By keeping the commercial trout in small areas, it should be easier to manage them and reduce losses due to their getting out of managed waters or starving because of inability to cope with stream conditions. Also, a 16-inch limit should help marginal unmanaged waters which are presently kept "fished out." Of course, if the water became overpopulated you could apply the "anterless deer" techniques and open selected streams for a half day on an "any size—any bait" basis. Perhaps the whole idea is naive and completely unrealistic since most of us do not have access to scientific studies which may refute these arguments. I, for one, would appreciate it if Mr. Barick or someone else familiar with the situation would write an informative article on the subject. JAMES E. BRITTAIN, KNOXVILLE, TENN.

Thanks for the suggestions, and articles will be forthcoming. N. C. hatchery trout production is but a supplement to natural trout production, and helps supply the increasing demand. Trout stream improvement on a large scale is tremendously costly. A few local clubs have done some stream improvement work.

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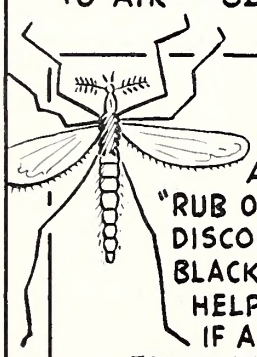
POISON IVY

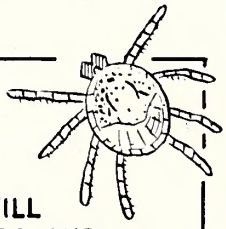
POISON OAK

POISON SUMAC

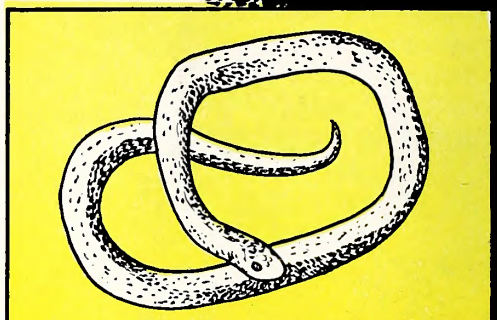
AVOID THESE PLANTS - BUT IF EXPOSED TO THEM WASH WITH A STRONG SOAP AS SOON AS POSSIBLE. DON'T USE A SCRUBBING BRUSH. IF IRRITATION APPEARS APPLY A SOLUTION OF BAKING SODA OR EPSOM SALTS - NO FATTY BASE OINTMENTS - LEAVE EXPOSED TO AIR — SEE YOUR DOCTOR



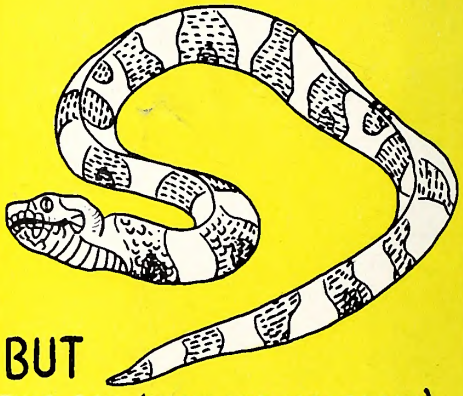
INSECTS---



A SMALL SPRAY GUN AND A GOOD INSECTICIDE OR A "RUB ON" INSECT REPELLANT WILL DISCOURAGE MOSQUITOES, MIDGES AND BLACK FLIES. A SIFTING OF SULPHUR WILL HELP AVOID TICKS AND "CHIGGERS". IF A TICK DIGS IN, DON'T PULL HIM OFF — TOUCH HIS REAR END WITH A FLAME AND HE'LL LET GO. CLEAR NAIL POLISH APPLIED TO A "CHIGGER" BITE WILL STOP THE ITCHING.



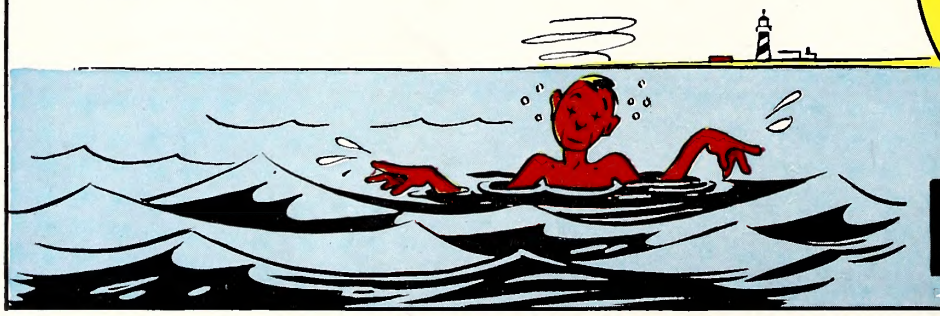
THIS FELLOW (GROUND SNAKE) IS EASILY TAMED AND HARMLESS



BUT THIS BOY (HIGHLAND MOCCASIN) IS DANGEROUS!

KNOW YOUR SNAKES!

and-don't swim out too far!



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Wildlife

JULY-1959

TEN CENTS

in north carolina

Photo by Jack Dermid

Fate of Deer Antlers

Every year in late winter thousands of antlers are shed by buck deer, but only a few are discovered by sportsmen during their woodland ramblings. Those found are often mere fragments, and examination reveals the toothmarks of the gnawing animals of the forests—such as the white-footed mouse (above), squirrel, rabbit, or chipmunk—who consume the mineral-rich antlers to supplement their diets with calcium, phosphorus, and other vital elements.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

The pert songster on our July cover is the catbird, a summer resident throughout North Carolina and occasional winter resident in the Coastal Plain. Although a secretive inhabitant of vine tangles, bushy field borders, and ornamental shubbery, the catbird is well-known because of his unmistakable dress and distinctive call.

The catbird—sexes are alike—is our only uniformly gray bird with a black cap and chestnut undertail coverts. He is famous for his catlike meow, a call that gave him his name. Like his relatives, the mockingbird and brown thrasher, the catbird is also a very capable singer and imitator. Water color by Richard A. Parks.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Photos by Jim Lee

LAKE HICKORY

by Frank Richardson

Fishery Investigator

TO fishermen living on the eastern slope of the mountains of North Carolina, Lake Hickory represents lake fishing unsurpassed anywhere. Duke Power Company impounded these 4,100 acres in 1928—little realizing that this reservior would become one of the most popular fishing waters in our state.

The reservoir, part of the chain of lakes on the Catawba River, is surrounded by Alexander, Caldwell and Catawba counties. The City of Hickory borders the lake on the south side and is at the midpoint of this 12-mile-long body of water ending at Oxford Dam.

Access and Accommodations

One of the most accessible lakes to the public, it has three major highways (127, 321 and 16) crossing the water and US 70 and 64 running just south of the reservoir. Fine restaurants, hotels and motels in Hickory are within a ten minute drive of the lake.

The several public boat docks located about the lake offer excellent facilities. These are reached easily by the network of county roads that surround the lake.

Many homes and summer cottages with private piers and boat houses dot the pine-sloped banks of the lake.

Duke Power Company and the Wildlife Resources Commission have a fishing access area in use for the public at the west end of the lake. An-

other access area for the east end of the lake is planned for the future.

The Catawba County Wildlife Club has its lodge within a half-mile of the Lonesome Pine Access Area. Fishermen are welcome to visit the club house and even become members. Thus, they could avail themselves of the very fine facilities that the club has for its members.

Physical Features

If you were to fly over Lake Hickory in a plane it might remind you of a centipede—the long body with lots of arms and legs. The main stem of the lake is never more than a half-mile wide and has hundreds of small coves from a half-acre to the giant arms of a hundred acres and more at Little River, Gun Powder and Rink Dam. If Lake Hickory were a few miles to the west it would appear like Fontana or Lake James—cold, clear, deep coves—or, if located a few miles to the east it would be more like High Rock Lake and Catawba Lake—warm, discolored, with shallow coves. Hickory has the desirable characteristics of all these lakes: a maximum depth of about 100 feet at the dam with both deep and shallow coves and water color that fishermen prefer. The water level fluctuates as little as five feet per year. The lake is seldom muddy and if it does becomes so after a spring cloudburst, only

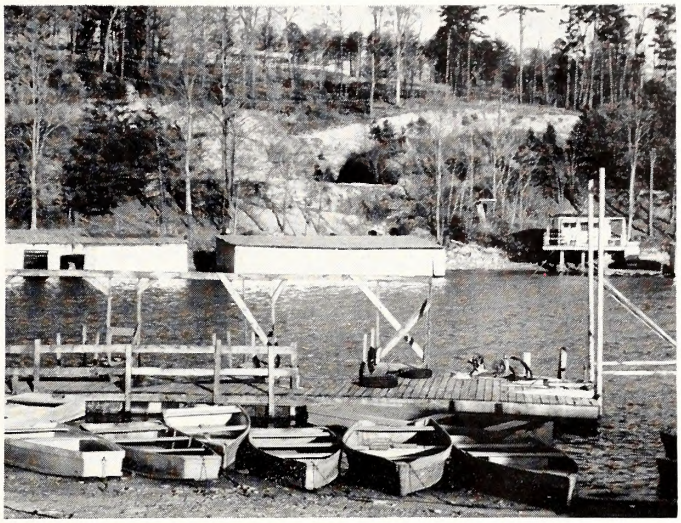
Lake Hickory is rated among the top fishing lakes in North Carolina—fine fishing, easy to reach, clean water, and plenty of accomodations for the fisherman.

a few days are required to put it back in good shape. All of the major streams feeding the lake—Catawba River, Gun Powder, Middle Little River and Upper Little River—have dams on them settling out most of the silt before it reaches Hickory.

Bass

The largemouth bass reigns in Lake Hickory. This fish is caught the year 'round here; but starting about the first of April bass fishing at Hickory is just short of fabulous for about two months. As the days grow longer and as the sun warms both the air and the water, bass fishermen start their spring offense. Using deep-running lures the anglers both troll and plug the deep banks. Here the bass are gathering prior to invading the shallow areas for spawning activities. May is here, dogwood trees are in blossom and *Micropterus salmoides,* the largemouth bass, has forgotten all he learned about staying off a stringer. It's spawning time—now they are moving about more than ever in shallow water and near the shoreline—their hunger and curiosity honed to a fine edge—doing what most bass fishermen have been dreaming about all winter, striking on the surface. Popping bugs, plunkers, noisy surface plugs and all the lures that fill up a tackle box that never seem to take fish, now earn their keep.

With the end of May goes this Utopian fishing period. Mr. and Mrs. Bass have seen to it that a few



Several commercial facilities serve the angler at Lake Hickory. Lakeside Beach, above, is one of the popular boat docks here.

thousand more bass have a chance for immortality—as trophy fish that hang on the den walls. But the bass fishing doesn't end in May—it tapers off to where the fishermen are back fishing deep and trolling. And such it is through late June, July, August and early September.

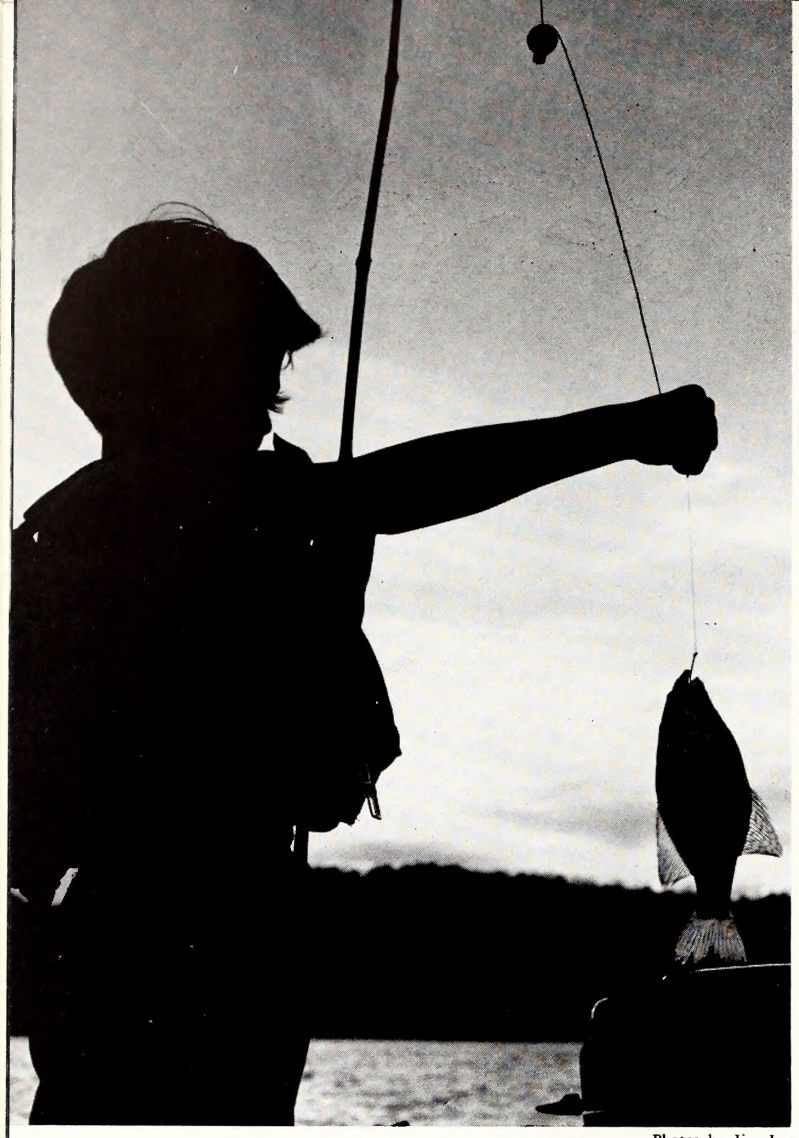
At Lake Hickory the bass fishing perks up toward the end of September and October. In the fall the water temperature has cooled and just before cold weather sets in the bass are back in the shallow water feeding before heading for the deep water in which they stay during the winter. As in midsummer, it's back to trolling in the winter until a new spring invasion begins.

Like most big impoundments the bass grow big in Lake Hickory. Every year there are a half-dozen or so reported that go over 12 pounds. They reach keeping size, ten inches, during their second summer of life. This is good bass growth for this type of water.

Bass Food

Probably no fish in North Carolina is more cussed and discussed than the gizzard shad. Lake Hic-

And swimming can be fun for the family while others wet a line.



Photos by Jim Lee

Spring fishing at Lake Hickory features crappie, which are caught in fantastic quantities with natural and artificial baits.

kory, like our other big impoundments, has this shad. Information gathered in fish surveys during four consecutive summers since 1955, indicates that gizzard shad in Lake Hickory are supporting a large bass population. The shad, though abundant, are contributing much to the fishing success of this lake. During the summer a six-inch live shad is a popular bait for the man fishing for lunker bass.

Althought Lake Hickory shows the usual slow-down in fishing success in mid-summer, expert anglers still come home with satisfying strings by trolling deep.

Crappie

Both black and white crappie are caught in Hickory. Taken all year long, the peak is reached in April and May. During this time they concentrate in areas where brush piles and dead trees are in the water. A typical scene on the lake is a boat tied up to a tree that has fallen into the water with three or four canes poles spoked out from the boat. Small live minnows for the cane pole fishermen do the job, while doll flies, white buck tails, small metal jigs, and small spinners do the job for fly rod, casting and spinning outfits. Crappie reach pan size in a year—about six inches. A three-pound crappie is tops for Hickory.

Robin and Bluegill

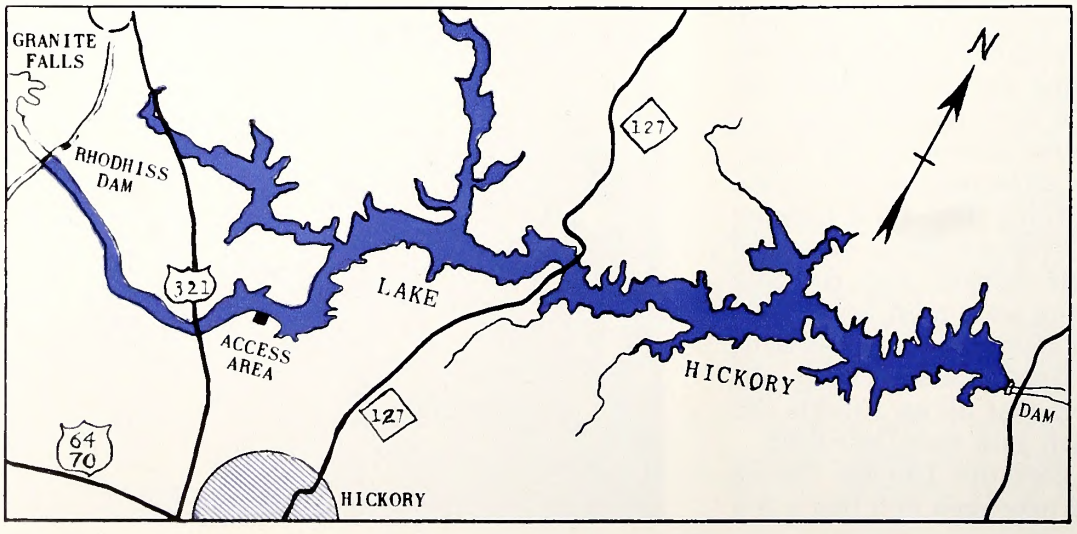
These two provide pan fishermen with many full creels during June, July, August and September. Worm fishermen, those with flyrods using wet flies, popping bug and small spinners, take robin and bluegill consistently during the summer. On Lake Hickory there is a minimum of sportsmen fishing for these two species even though they can be taken in great number. This is likely explained by their size, as they average about six inches long.

White Catfish

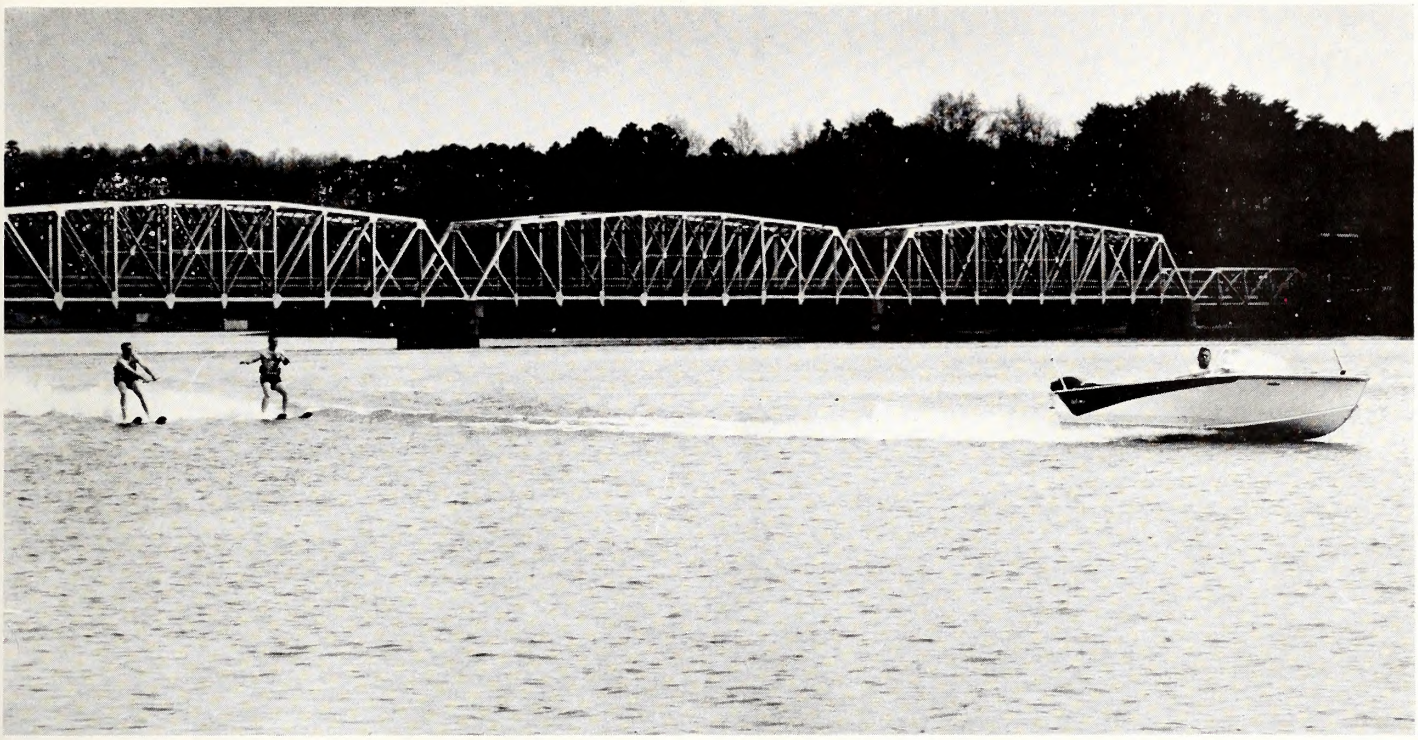
A most pleasant way to spend a warm night in August is to gather up your old casting rod and steal off to a boat pier, get some cut shad and fish for catfish. Most any night like this you will probably have company at the pier—even catch a mess for supper—spin a few yarns with your neighbor about the good old days and the big one you landed last spring.

Other Game Fish

Walleye have been stocked in Lake Hickory with no apparent spawning success. Occasionally a big one is taken indicating that they are still hanging on. Rainbow trout with migratory instincts of going to sea come down from the mountain trout water



The area of Lake Hickory is not unusually large, but the long shoreline of the Catawba River impoundment makes it a fisherman's wonderland. Just above the headwaters of Hickory Lake is the dam of Rhodhiss Lake, and immediately below the dam of Hickory begins another lake, Lookout Shoals. Hickory Lake is one of the easiest to reach in the entire state.



Water skiing, sometimes to the dismay of the fishermen, is a popular sport at Lake Hickory. The lake is relatively free of floating debris which is often a hazard to skiing enthusiasts.

and are very rarely taken by fishermen. Yellow perch and warmouth are present but seldom appear in the creel.

The Catawba Wildlife Club has made several attempts to establish the striped bass, or rockfish, in Lake Hickory with the stocking of adult brood stock from Santee-Cooper Reservoir in South Carolina. To date, there has been no indication of successful spawning and a lack of suitable spawning sites makes it unlikely that this project will meet with any degree of success.

Other Water Sports

Boating riding, water skiing and swimming (sometimes much to the dismay of some fishermen) are an important part of the recreation features of Lake Hickory. Saturday and Sunday afternoons during the summer find an ever-increasing use of the lake by boating enthusiasts.

COMMERCIAL ACCOMMODATIONS ON LAKE HICKORY

	Licenses	Boats	Motors	Launching	Bait	Tackle	Snacks	Meals	Fuel	Docks
Taylorsville Beach	X	X	X	X	X	X	X	X	X	X
Rink Dam	X	X	X		X	X	X		X	
Lakeside*	X	X		X	X	X	X	X	X	X
Huffman's		X			X	X	X		X	
Jimmy's	X	X	X	X	X	X	X		X	X
Rockhouse	X	X	X		X	X	X		X	
Cliff's†	X	X	X	X	X	X	X		X	X
Hull's		X			X		X			

*Lakeside has marine garage
†Cliff's will add meals in 1960

With the cooperation of Duke Power Company, which operates the hydroelectric power lake, a fishing access area makes it easy for boaters to launch their craft in the huge impoundment.

Headquarters for the new national wildlife refuge will be the old Knapp mansion, which sits on a point of land jutting into famous Currituck Sound across from the Currituck Courthouse.

MACKEYS ISLAND REFUGE

by Jim Lee

Photos by the Author

A new federal wildlife refuge has been authorized for North Carolina—you'll pay more for your duck stamp this year and you'll get more for your money.

To reach Mackeys Island by car one must drive into Virginia and turn down a paved highway to Knotts Island. Part of the famous snow goose haven, Great Marsh, is split by the road.

MACKEYS Island National Wildlife Refuge—at the moment that's just a name, but in years to come Mackeys Island will mean better hunting and fishing for the sportsman. At present in private ownership, purchase of 7,856 acres has been authorized by the Migratory Bird Conservation Commission.

You won't find Mackeys Island on most maps, but look for Knotts Island, in Currituck County. Knotts and Mackeys form a single peninsula hanging from Virginia into Currituck Sound. The two "islands" are divided by a marsh.

The new refuge will include all of Mackeys Island and part of Knotts Island, and will extend into Princess Anne County, Virginia. The largest single tract in the purchase area is the old Joseph P. Knapp Estate, occupying most of Mackeys Island.

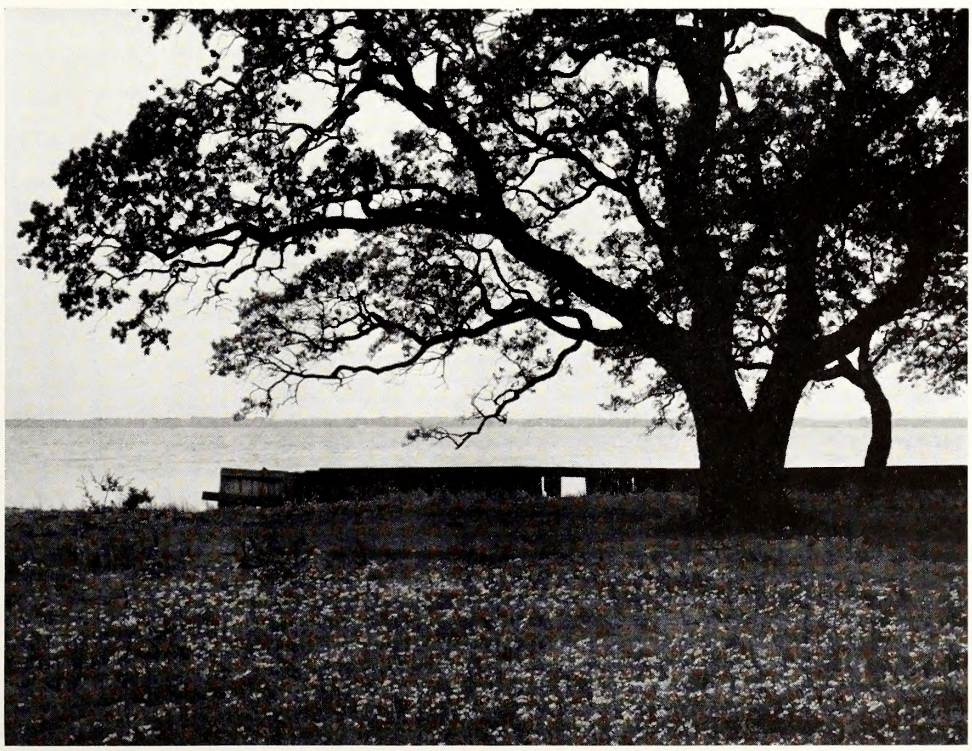
Authorization for the purchase of Mackeys Island, to be administered by the U. S. Fish and Wildlife Service, came at a meeting of the Migratory Bird Conservation Commission on April 8. The commission is composed of secretaries of Agriculture, Commerce and Interior, along with two senators, two representatives and a secretary. Ex officio member representing Governor Hodges at the meeting was District 1 Wildlife Commissioner Orville Woodhouse of Grandy.

The purchase of the waterfowl area reflects the provisions of a recent Congressional act which increases the federal duck stamp to $3.00. The act, which takes effect July 1, requires that all revenue be spent on acquisition of waterfowl habitat. Previously much of the $2.00 fee was spent for administration, enforcement, and development.

Mackeys Island will join a chain of federal refuges which includes Back Bay in Virginia, Pea Island in Dare County, and Mattamuskeet and Swan Quarter in Hyde County. Waterfowl concentrated in the area include Canada geese, snow geese, and several species of ducks. The former Knapp Estate includes several fresh-water ponds which hold a potential for development of waterfowl food and fishing.

Ross Leffler, Assistant Secretary of the Interior for Fish and Wildlife, commented recently on the Mackeys Island authorization. "When this area is acquired as part of our accelerated acquisition program, it will be another permanent asset to the Atlantic Flyway."

Built during the early Thirties by the late Joseph P. Knapp, this house will be headquarters for the new refuge. Only a rutted sand road now crosses the marsh from Knotts Island.



Currituck Sound is framed by a huge live oak in front of the house at Mackeys Island. Currituck has long been famous for waterfowl and fresh-water fishing. It is reported that plans for the refuge include rebuilding old bulkheads that formerly kept water levels constant in several big ponds on the estate. Here food for waterfowl could be developed along with good largemouth bass fishing.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Outdoor Writers Get Bridge Fishing Bill Passed

The N. C. Outdoor Writers Association sponsored legislation making it legal to fish from highway bridges having walkways four feet wide along the right-of-way or having catwalks outside the bridge rails. The legislation passed both houses and is now in effect on the following bridges that qualify under the law:

Inland Waterway at Wrightsville Beach; Banks Channel at Wrightsville, and Slough Bridge. These three are on U. S. Highways 74 and 76. The Old Banks Bridge, near Wrightsville, is on a county road formerly Highway 74 and 76.

Other bridges are: New River Bridge at Jacksonville (Highway 17); Perquimans River at Hertford (U. S. 17), and Minor Channel of Roanoke Sound at Whalesburg. The latter is between Manteo and Nags Head, will carry Highways 64 and 264 when completed in August.

Wildlife Commission Makes Personnel Changes

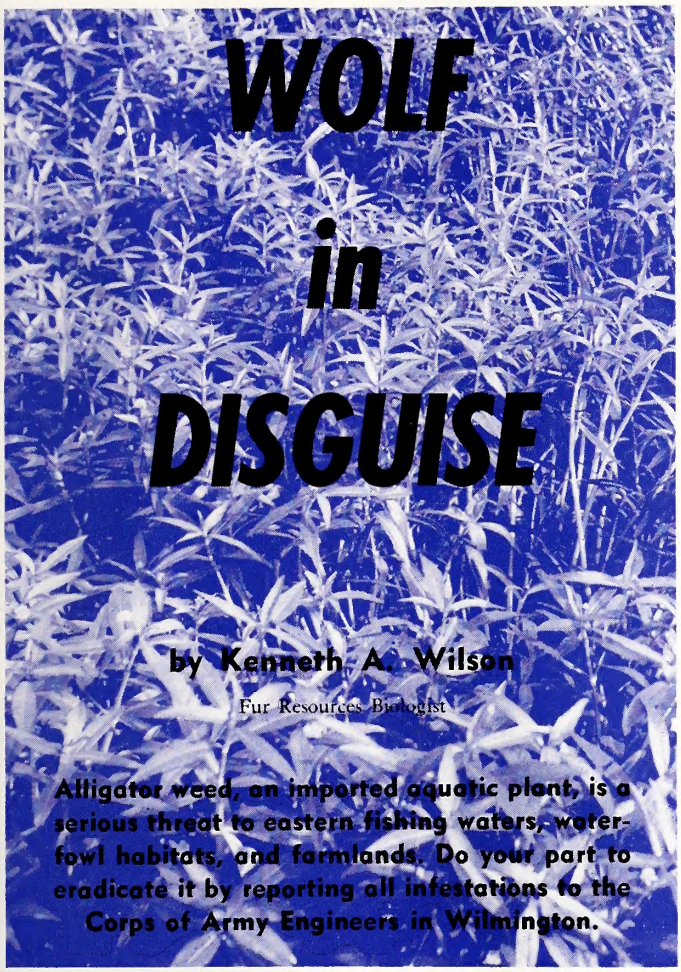
Ben H. James, chief of the Wildlife Commission's wildlife protection division has requested to transfer to the Commission's game division and will supervise eastern wildlife management areas effective July 1. Other changes, also effective July 1: Robert B. Hazel, assistant chief of the wildlife protection division, will replace James. Donald E. Curtis, wildlife protection supervisor of District 8 will serve as Hazel's assistant. C. M. Teseneer, patrolman in District 2 will replace Curtis as supervisor in District 8. Harold E. Sides, wildlife protector in Stanly County will replace Teseneer as District 2 patrolman and Lacy M. Ray, wildlife protection trainee from Rich Square, will replace Sides as Stanly County protector.

Edward J. Larimer, supervisor of eastern wildlife management areas, will become supervisor of northern management areas to replace Kenneth J. Chiavetta who resigned to take a position with the U. S. Fish anl Wildlife Service.

1959-60 Hunting and Trapping Regulations Set

At its June meeting the Wildlife Resources Commission established the rules and rgulations for the 1959-60 hunting and trapping seasons. Only minor changes in dates and bag limits were made. The regulations are based on the findings of Commission field personnel relative to the game supply and on the opinions of sportsmen at a series of nine public hearings held during May. Copies of the new regulations will be available from license dealers on and after August 1 when the regulations and new hunting licenses go into effect.

Regulations on doves and other migratory game birds will be published later in the summer by the U. S. Fish and Wildlife Service.



WOLF in DISGUISE

by Kenneth A. Wilson

Fur Resources Biologist

Alligator weed, an imported aquatic plant, is a serious threat to eastern fishing waters, waterfowl habitats, and farmlands. Do your part to eradicate it by reporting all infestations to the Corps of Army Engineers in Wilmington.

IT is a harmless looking plant with a hollow stem and opposite dark green leaves. It grows in marsh or sand, in swamp or farmland and in water. It provides an excellent breeding and hiding place for mosquitoes, plugs ditches and creeks, impedes drainage and navigation, destroys wildlife habitat and poses a threat to agriculture. That is *alligator weed!*

Alligator weed occurs over a wide area in Central and South America and in the United States it is largely distributed along the lower coastal plain from North Carolina to Texas. According to Dr. A. C. Martin, et al, U. S. Fish and Wildlife Service, "It reproduces and spreads mainly vegetatively; seeds are not known to be produced in this country." However, the tiniest stem or root fragment in contact with soil or water is capable of reproduction and the new growth increases at an alarming rate. During 1956, Dr. Ernest Beal, State College, located a growth of alligator weed in Harris Mill Pond about two miles south of Winton. When discovered in October, the infestation was only about 12 feet in diameter. Twelve months later, it had spread along 150 feet of the pond and at one point was more than 20 feet wide. At Orton Plantation and along the canal at Lake Waccamaw, its rate of growth is even greater.

Prior to 1955, alligator weed in North Carolina was thought to be confined to the lower Cape Fear River basin, New Hanover County and the Lake

Currituck County. On farm and in ditch at Moyock.

Currituck County. Along shore of North River west of Jarvisburg.

Hertford County. In Harris Mill Pond about two miles south of Winton.

Perquimans County. Scattered growths in ditch about four miles northwest of Winfall.

Perquimans County. At the mouth of the Perquimans River and in a swamp and creek along a dirt road about two miles southeast of town of Durants Neck.

Martin County. In a ditch about one mile west of Bear Grass and in Bear Swamp and Turkey Creeks.

Beaufort and Pitt Counties. Along the shores of Tranters Creek bordering the two counties.

Tyrrell County. In the creek on the south side of Columbia along Route 94 and in the Scuppernong River.

Hyde County. At scattered points in the Mattamuskeet National Wildlife Refuge.

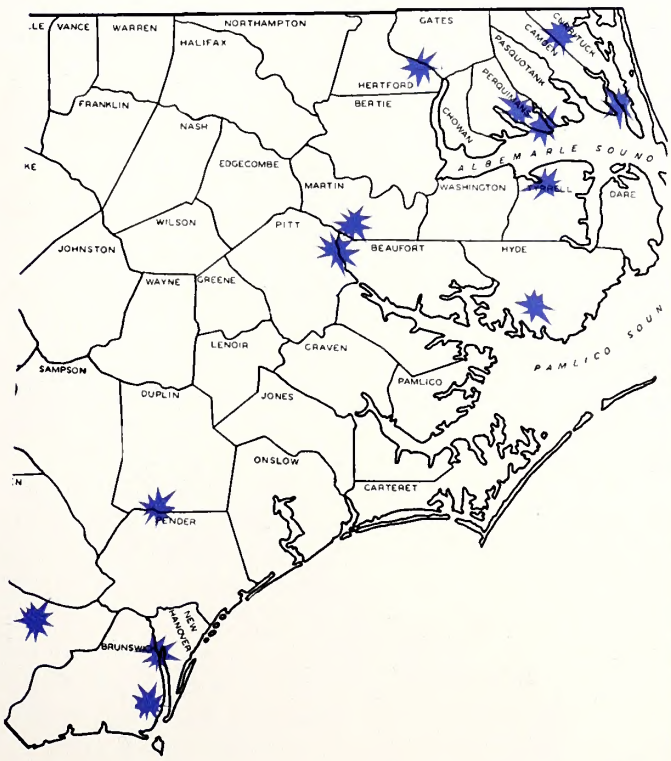
Duplin County. In a creek near an electric power plant on Route 11 near its intersection with Route 117.

Columbus County. In the canal and along the shores of Lake Waccamaw.

Brunswick County. In canals, ponds and terrestrial sites at Orton Plantation.

New Hanover County. Heaviest growth in marsh along Cape Fear River but also in many creeks and ponds. Greatest occurrence in or near the outskirts of Wilmington.

Known Alligator Weed Infestations in North Carolina

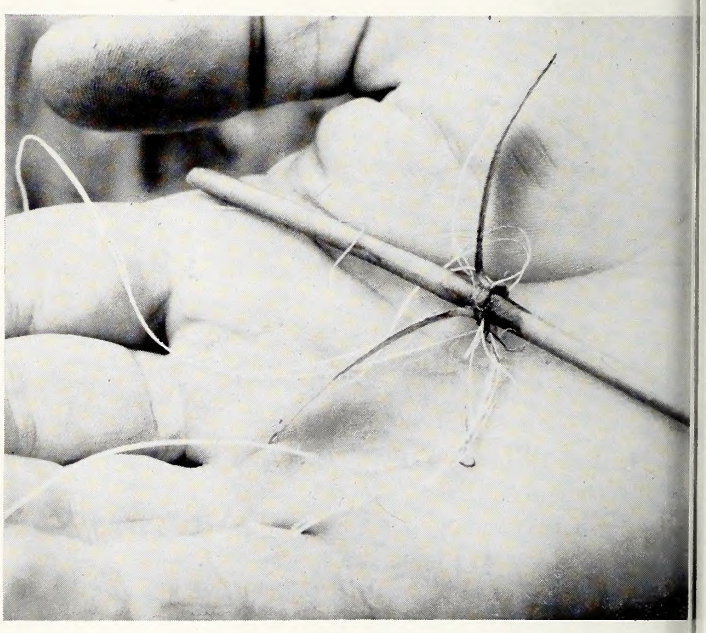


Map by Jim Lee

Photo by Kenneth Wilson

Once established, alligator weed spreads at a tremendous rate. This large infestation in Harris Mill Pond near Winton was only 12 feet in diameter one year before the photo was made.

Do not pick or pull alligator we unless you destroy it, for ste or roots when cast upon land water may take root and st a new infestation.



Waccamaw area. But on August 29, 1955, Mr. Yates M. Barber, Jr., waterfowl biologist, (now with the U. S. Fish and Wildlife Service) informed the writer of an infestation at Moyock. Moyock lies just north of Currituck Sound, near the Virginia line. Since then, it has been found in Beaufort, Duplin, Hertford, Hyde, Martin, Perquimans, Pitt and Tyrrell counties. Currently, alligator weed is known to be in eleven counties in the state.

Alligator weed in Currituck County occupied the upper reaches of Moyock Creek and the Northwest River that flows into Currituck Sound. Other infested sites included lawns and road terraces in Moyock, grounds around a store and a half-mile stretch of drainage ditch. About one acre of soybeans on the Winslow Farm was blanketed by the weed. Floating mats of the plant blocked boat transportation near town along 200 yards of the creek. This infestation and mats in the river were destroyed by loading the weed into boats and burning on the town dump. Patches in terrestrial sites around town were eradicated after several applications of Borascu, but it took rates exceeding ten tons per acre. Obviously, this method of control is not economically practical or even possible in water. Growths in the ditch and farmland have been sprayed with numerous herbicides annually since 1955. During this five-year period, technicians of the U. S. Fish and Wildlife Service and the Wildlife Resources Commission and Mr. Winslow have treated the infested areas with everything from Baron and other soil sterilants to Dalapon and 2, 4-D. Today 99 percent of the alligator weed in the ditch has been killed but patches still remain on the farmland. This fact makes one shudder to think what might happen if this terrible weed ever got a common foothold on the farmlands in the state.

Its rapid spread into the southeastern part of the state has made it a serious problem for fishermen and those working with marsh wildlife and malaria control. Growths in the Lake Waccamaw canal last year made bank fishing impossible at many sites. In some areas, the approximately 40-foot wide canal was completely blanketed by alligator weed. To restore fishing and boating to normal, the State Highway Department raked the floating mats up on road banks and burned them. But this year, the operation may have to be repeated because new growth is again rapidly filling the canal. Spread of this pest plant into watercourses and terrestrial sites along the lower reaches of the Cape Fear River basin is threatening waterfowl. It is growing in one of the world's greatest waterfowl wintering grounds—Lake Mattamuskeet. Attempts are currently underway to contain its spread. It is equally important to keep the pest

plant from spreading from the Moyock infestation to another famous waterfowl area — Currituck Sound.

In the city of Wilmington, alligator weed virtually covers the upper reaches of Greenfield Lake and its dense mats provide excellent breeding conditions for mosquitoes. This presents a serious health problem. Fortunately city health officials are aware of this and are currently making attempts to eradicate the weed.

Alarmed by the slow progress being made to eradicate alligator weed and other pest plants in the Southeast, the 85th Congress under Public Law 85-500, Sec. 104, has "authorized a comprehensive project to provide for control and progressive eradication of . . . . . alligator weed and other obnoxious aquatic plant growth from the navigable waters . . . . . and other allied waters in the states of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas in the combined interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health and related purposes, including continued research for the development of the most effective and economic control measures, at an estimated additional cost for the expanded program over that now underway of $1,350,000 annually for five years, of which 70 per centum presently estimated at $945,000, shall be borne by the United States and 30 per centum presently estimated at $405,000 by local interests to be administered by the Chief of Engineers under the direction of the Secretary of the Army in cooperation with other Federal and State agencies . . . . . The Federal funds appropriated for this project shall be allocated . . . . . on a priority basis based on the urgency and need of each area and the availability of local funds."

The Corps of Army Engineers at Wilmington is organizing the program in North Carolina. Surveys and meetings are completed and plans are ready to start preliminary control of alligator weed in July.

Everyone who reads this article is urged to be on the lookout for this plant. A number of plants resemble the weed; so study the photographs in this magazine closely—or better still visit one of the sites of infestation. Do not pick or pull up the plant unless you intend to destroy the parts. *Remember* stems or roots cast on ground or water may take root and start a new infestation. *Remember* the plant has opposite leaves and a hollow stem, and most of the time it will be found in wet places in or near water. *Remember* it is characteristic of the plant to grow in dense mats. *Report all infestations* to Mr. O. H. Johnson, Jr., Corps of Army Engineers, Wilmington, North Carolina, and if possible submit a pressed sample of the plant.

Act now to cooperate with your federal and state agencies to help them eradicate this threat to hunting, fishing, boating, agriculture and health on and along our coastal waterways.

REFERENCES

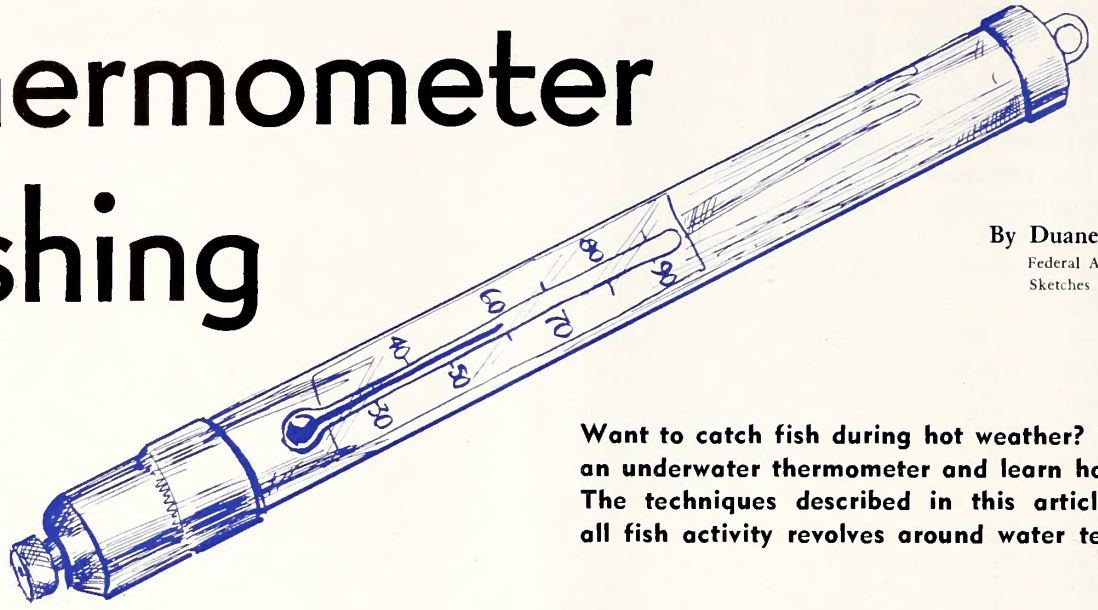
1957. Improving Duck Marshes by Weed Control. Alex C. Martin, Ray C. Erickson, and John Steenis. Circular 10-Revised. Fish and Wildlife Service.

1956. Portrait of a Killer. Jack Dermid. Wildlife in North Carolina 20 (5)

Photos by Jack Dermid

Alligator weed is truly a wolf in disguise. Small patches look harmless enough, and its white flowers, which resemble white clover, are attractive. But the pest can spread over water in impenetrable mats that clog streams, ruin fishing, and create serious mosquito problems. Learn to recognize it.

Thermometer Fishing



By Duane F. Raver, Jr.
Federal Aid Coordinator
Sketches by the Author

Want to catch fish during hot weather? Then obtain an underwater thermometer and learn how to use it. The techniques described in this article work, for all fish activity revolves around water temperatures.

MID-SUMMER can be real tough for the vacation angler in search of a good fish. His time is limited, the water is hot, the skiers are out in full strength, and, well it's rough to make a decent catch. The summer slump after a spring of plenty makes it even worse because you know the fish are there . . . but where?

You don't have to be told that finding fish is at least half the battle in putting them in the ice chest. True, even locating the critters does not always assure us of limit catches. But you're ahead of the game if you fish where they are.

Fish respond to temperature more than any other single factor in their environment. They build their nests in response to an almost exact temperature; the eggs hatch after so many hours at a certain temperature; feeding, both time and quantity, is often regulated by warm temperatures; growth certainly is affected by how cold or warm the seasons are. So it goes with almost every facet of the fish's life—water temperature controlled. Yet, we carefully check the barometer, test the wind, look at the fishing calendar—and the water temperature? Well, it's nice and warm. Now, if the barometer, wind and almanac create better fishing for you, well and good. Don't let the fact that there is practically no scientific basis in these theories dismay you. The main thing is, try the thermometer fishing a time or two or even for a summer before drawing any conclusions.

The background for this temperature story is as old as water itself. In the summer many lakes, reservoirs, and even ponds settle themselves into layers of water, a little like a three-layered cake. Now, the thickness, depth and stability of these layers from lake to lake, vary considerably. Underlying the entire procedure is the fact that cold water is denser and heavier than warm (so with air, too) and it simply sinks to the bottom. Without delving into the scientific details of this layering which carries the formidable name of thermal stratification, let's simply look at a representative situation that could apply to your favorite reservoir. The surface waters are between 80° and 85° during the day and cool only a few degrees at night. In the top 20 feet, the temperature is about the same because of circulation, say from 80° to 75°. No distinct drop is detected in this top layer. But, in the layer from 20 feet to 30 feet thick, the temperature suddenly nose-dives 10 to 15 degrees or more. Below this stratum (technically called the thermocline) the bottom layer may be from 20 to over 100 feet thick and the temperature decline levels off and drops gradually again to, say 50° at the bottom. We have described perhaps an "ideal" example and it should be pointed out that not all waters, even deep reservoirs, display this "sudden drop" layer. On the other hand, a 15-foot-deep farm pond may have a miniature situation of this type. River currents often run the entire length of reservoirs, upsetting this beautiful scheme of things. So, each body of water must be handled separately.

Now, what does all this have to do with catching a three-pound bass? First, we must know—at least roughly—what temperature bass prefer and then find that temperature and fish there! One rather disturbing fly in the ointment might as well be brought out right here: this bottom layer of cold water may contain very little oxygen. So even if the temperature is "right," fish may very well be unable to live there because of the lack of oxygen. You can measure temperature quite easily, but determining the oxygen content of water is slightly out of the line of most of us fishermen! So what do we do?

First, take your thermometer, preferably one

designed for water use, and lower it to the bottom of a likely looking spot in the lake. If the depth (your line should be well marked) is more than 50 feet, move inshore unless trout is the object of your affection. Allow the thermometer to remain at the bottom level about a minute and haul it rapidly to the surface. Check the temperature every 10 feet until you discover a "breaking point" in the series. Record your temperatures on a sheet of paper. Then, remembering that largemouth bass usually prefer 68° to 73°, fish at the depth where these temperatures occur. No bass? Change lures and fish another 20 minutes. Still no fish, fish in the next 5 feet toward the surface. Trolling is particularly effective since lots of water can be covered and you can regulate fairly closely your fishing depth.

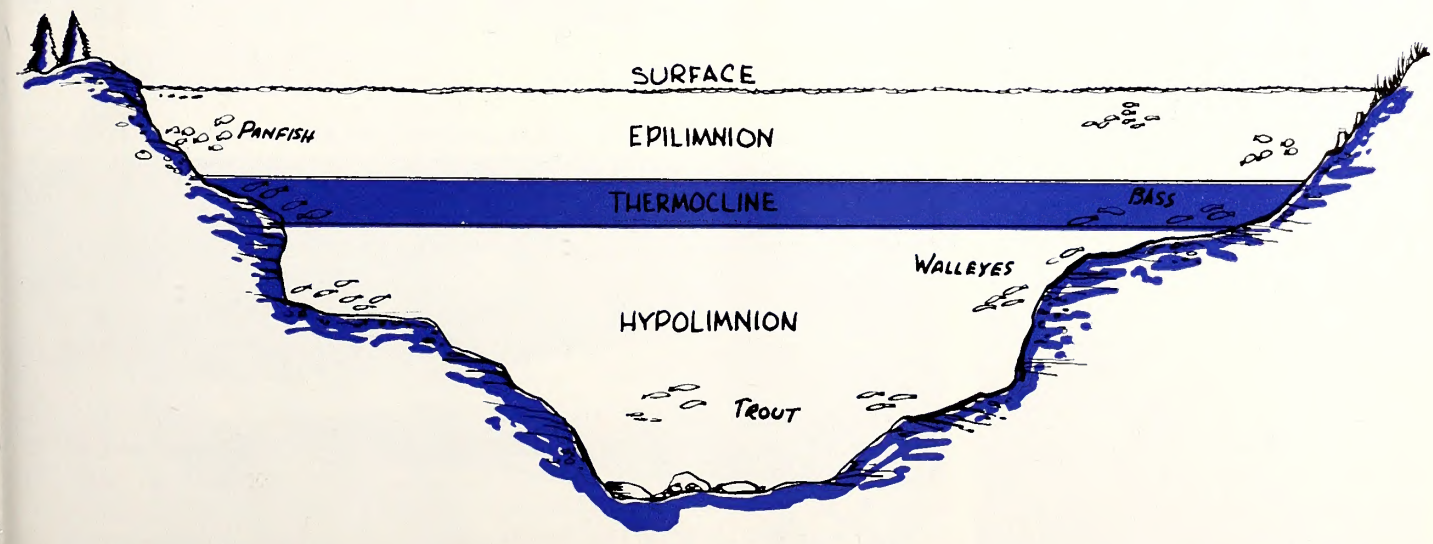
Sound complicated? Remember we're fishing in mid-summer when we need all the tricks. Equipment-wise you need (other than your tackle) a thermometer and a marked line. If you have difficulty in "feeling" when you've reached bottom, a small weight may be necessary on the lower end of the thermometer. Also you need to know these temperature preference figures (they're my own and the fish don't *always* agree!)

Pumpkinseed	75°—82°
Bluegills-Crappies	73°—80°
Largemouth Bass	68°—73°
White Bass	65°—75°
Yellow Perch	70°—75°
Smallmouth Bass	65°—73°
Walleyes	62°—70°
Brown Trout	58°—60°
Rainbow Trout	57°—60°
Brook Trout	52°—58°

Give it a try! Nothing in fishing is infallible, but thermometer fishing may help your mid-summer catches.

Photo by Jack Dermid

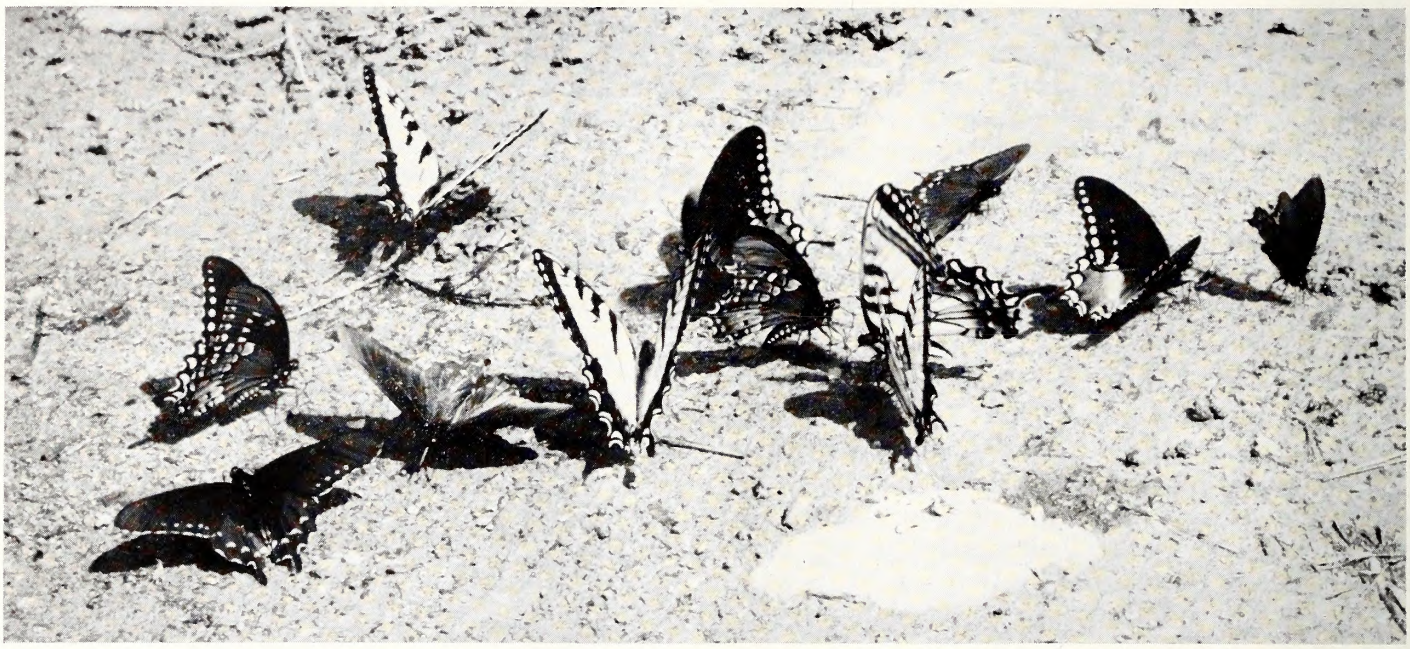
Temperature scouting pays off. Walleyes seek cool water during the warm summer months, and it may take a thermometer to find them and a deep-running lure to catch them. Try the deep, rocky points where water temperature is less than 70°.



This diagram showing a cross-section of a deep reservoir indicates the probable location of some popular game fish. The deeper waters, far below the thermocline, may not have sufficient oxygen to sustain fish life. Check the temperature with an underwater thermometer and fish accordingly.

Around the State

Pictures of people, places, and things in North Carolina



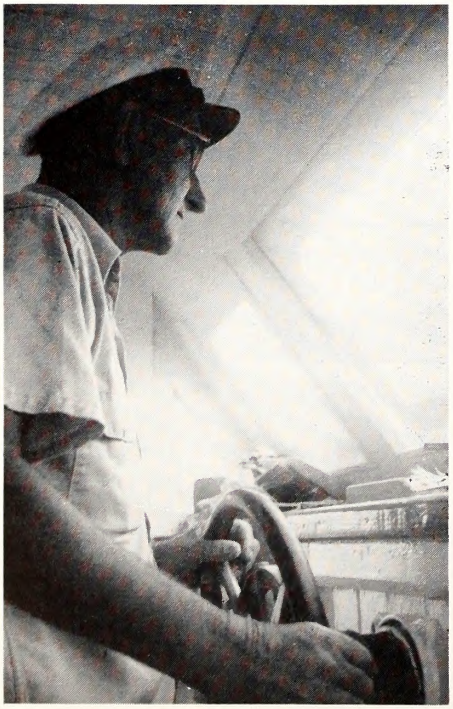
BUTTERFLIES DANCE IN ROAD ALONG SNOWBIRD CREEK IN GRAHAM COUNTY AS SUMMER COMES TO THE WESTERN MOUNTAINS.

PHOTOS BY JIM LEE

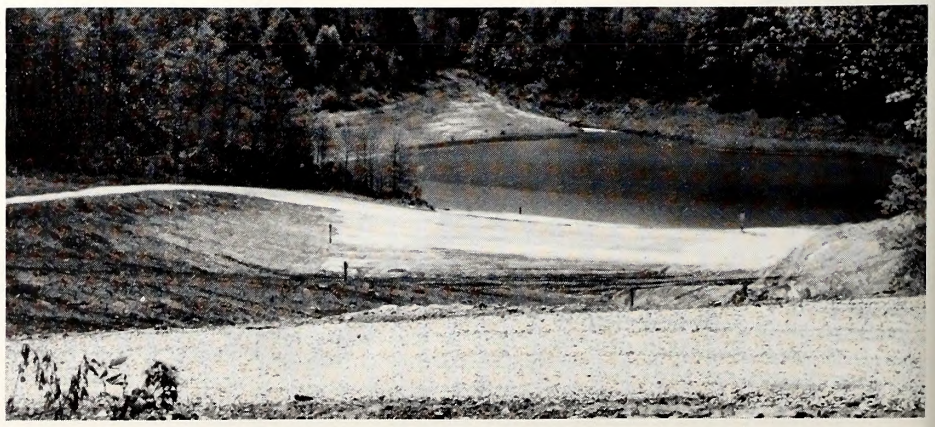
TOURISTS EXPLORE OLD SHIPWRECK ON THE BEACH OF HISTORIC DARE COUNTY.

TINY HORNETS' NEST GROWS AS BUSY INSECTS CONSTRUCT NEW PAPER HOUSE.

CAPT. JOHNNY STYRON STEERS CHARTER BOAT "SYLVIA" INTO MORNING SUN AS MOREHEAD CITY SPORTFISHING BOOMS.



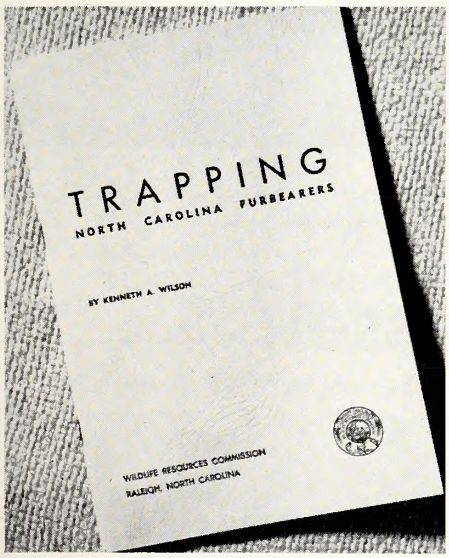
NEW NANTAHALA LAKE FISHING ACCESS AREA AWAITS ANGLERS AT ROCKY BRANCH.



N. C. TRAPPING BOOK WINS NATIONAL PRIZE

Three North Carolinians win Award of Merit

A recent Wildlife Commission publication, "Trapping North Carolina Furbearers," won a national award at the annual meeting of the American Association for Conservation Information in late May. Chosen as the best non-technical bulletin produced by a state conservation agency in 1958, the booklet was written by fur resources biologist Kenneth A. Wilson of Greenville.



Prize-winning Booklet

Also announced at the meeting, held at Marshalls Creek, Pa., were three awards of merit for outstanding contributions to conservation information and education.

Lunette Barber, veteran Wildlife Commission education representative, was honored for her work with schools and clubs during the past ten years.

Chester Davis, feature writer and outdoor columnist for the Winston-Salem Journal and Sentinel, was given an award for his work in furthering better understanding of the fish and game programs in North Carolina through his column.

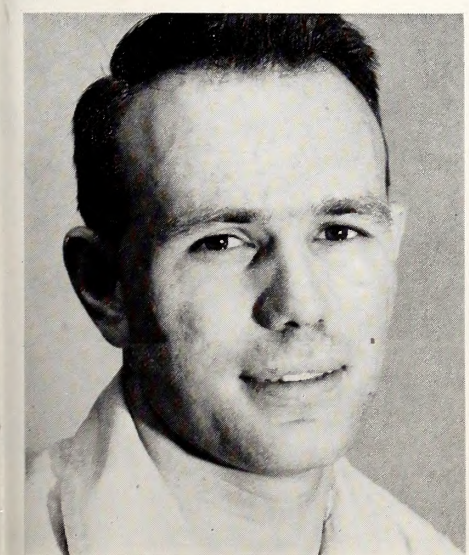
Dick Pierce, sports writer and outdoor editor of the Charlotte Observer, was given an award for his contributions to conservation information in the two Carolinas.

Judges for the awards were Dr. Ira Gabrielson, Mike Huduba, Dick Stroud, Charles Callison, and Joe Penfold, all of Washington.

AACI Award

Ken Wilson

Otto Florschutz, Jr.



Game Biologists Make Changes

Changes in the Game Division announced during June affect waterfowl hunters in the east and deer hunters in the west. Otto Florschutz, Jr., recent graduate of the University of Delaware, is the new waterfowl project leader. He has past experience in Alaska and at the Patuxent Wildlife Research Refuge in Maryland.

Kenneth J. Chiavetta, project leader for the western segment of the big game restoration project since 1953, resigned to become the editor of *Wildlife Review,* a federal technical bulletin.

Ken Chiavetta

Summer camp provides a wonderful opportunity for youngsters to learn firsthand about the out-of-doors and conservation.

What Is A River Mussel?

Photo Short by Jack Dermid

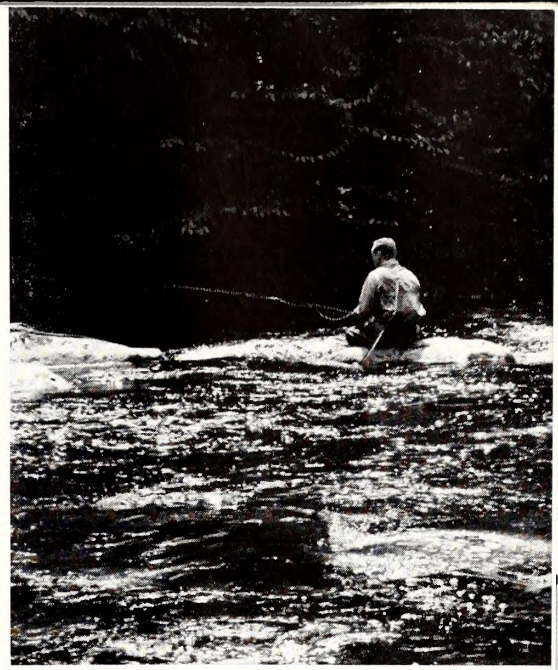
INTENSE interest is reflected in the faces of the boys and girls in the above photograph as Bill Hamnett of the Commission's Education Division opens the shell of a river mussel to show them the strange creature inside and tells them the fascinating story of its life.

Youngsters of all ages have an inborn curiosity about the world of nature. They want to learn about wildlife, forests, clean waters, and conservation. And all that is needed to develop this interest into a life-long appreciation for the out-of-doors and the high values of our natural resources is to give them the opportunity to learn with proper guidance.

Realizing that children of today will be the sportsmen and guardians of our natural resources tomorrow, personnel of the Wildlife Resources Commission are cooperating with summer camps whenever they can to tell the conservation story. Classes are scheduled by education representatives, wildlife protectors, and fish and game biologists in camps from Manteo to Murphy. The benefits to the youngsters will be immeasurable.

Besides wildlife, the Commission's summer camp program emphasizes shooting and water safety, items that are becoming important as more people than ever seek outdoor recreation.

Fishermen Haven't Changed



Reprinted from the **Smoky Mountain Times,** Bryson City

Saturday found us tramping along some of the trout streams in Swain County. To find out whether the fishing was good or bad we asked some of the anglers questions.

It went like this. "Good morning. How is fishing today?" The angler answered, "Friend, I ain't doing a thing. Might as well be home sitting by the fire." (Actually the fisherman has just caught a trout long as his arm and twice as heavy and is hoping you'll soon be on your way.)

On down the creek a little ways we come upon a fellow all decked out in the latest gear, new rod, shiny reel, fishing jacket, hat with flies stuck all over it, landing net and expensive creel. Noticing he's a little nervous and his hand is jerking, we remark that he must have hooked a big one. "Mister," he says, "you should have seen it. I laid this No. 10 royal coachman on the water and this monster grabbed it. I struck too soon and missed it." (The monster which struck this fly was five inches long and not yet big enough to eat a No. 10 anything).

As we meander down the creek we see a game warden talking to an angler. "I'm sorry, sir, but you will have to pay a fine for fishing without a license," the warden says. The fisherman replies, "Wait a minute. Wait a minute. I'm not 16 yet. I'm just big for my age." (He just turned 19 and the draft board is hard on his heels).

Next we see a fisherman with a nice string of rainbows. "Boy, that's a pretty string of trout," we remark. "Fair, just fair," the angler replies.

"What'd you catch 'em on?" we ask, of course. "I used a Colorado spinner and fly," he says. (He caught every last one of them on plain old red worms but won't admit it).

When we got back to the office, we weren't sure whether the fishing was good or bad, but were sure fishermen had not changed one iota.

PROTECTOR OF THE MONTH

Melvin E. Hill

Melvin E. Hill was born on May 16, 1923, and attended school in Snow Hill, North Carolina. He was appointed Greene County Wildlife Protector on November 10, 1950, and attended the 1951, 1958, and 1959 sessions of the Wildlife Protectors' In - Service Training School at the Institute of Government, University of North Carolina.

Mr. Hill is married to the former Frances Bright of Lenoir County, and they have three children. They reside at Hookerton, and are members of the Hookerton Methodist Church.

In addition to his wildlife work, Mr. Hill is Assistant Scoutmaster of Troop No. 238 in Kinston. He is a Mason and member of Radiance Lodge No. 132, Snow Hill, a member of the Southeastern Association of Game and Fish Commissioners, North Carolina Wildlife Law Enforcement Officers' Association, and an active member and officer in Area V of the North Carolina State Employees' Association.

ENFORCEMENT RECORD FOR APRIL

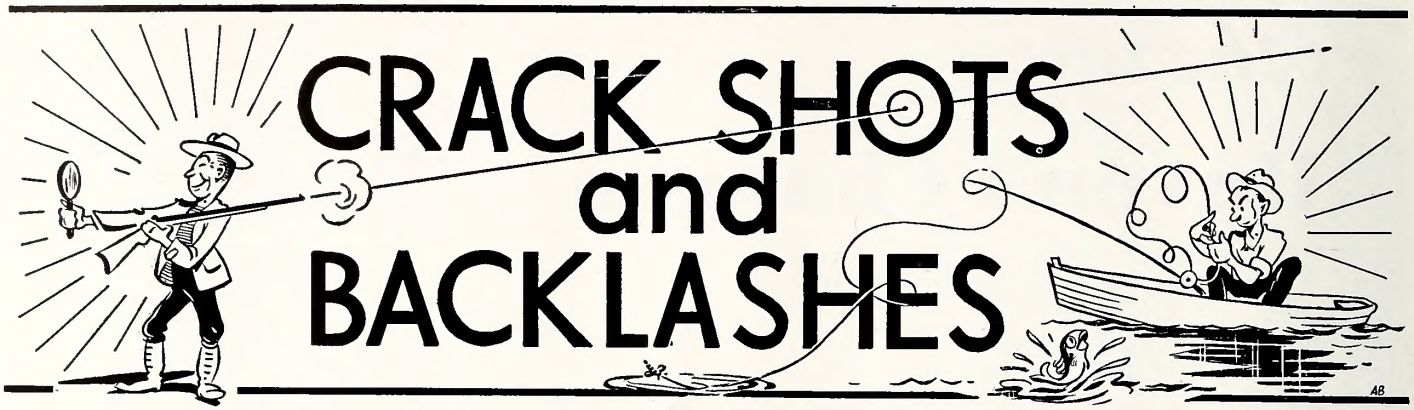
Persons checked	39,942
Total prosecutions	757
Total convictions	698
Total cases not guilty	30
Total cases nol prossed	29
Total fines collected	$3,177.30
Total costs collected	$5,519.55

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is it lawful to fish with the aid of skin diving gear and spear in the waters of North Carolina?

ANSWER: The fishing regulations provide that, as a means of improving game fish habitat, *non-game fish* may be taken from inland waters with special devices other than a hook and line. These devices include gigs or fish spears, various types of manually operated and fixed nets, and fish baskets or traps. Use of these special devices is permitted only during certain seasons and in certain localities and only after the device or the person using it, depending on its nature, has been licensed.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Most fishermen are so busy taking care of their tackle and other paraphernalia that they forget to take care of themselves. While they're landing that big 'un they may be running the risk of dangerous sunburn.

Recent studies of solar energy have made it possible for anglers to get a healthy tan scientifically, with a better chance of avoiding painful burns, especially in their first days of fishing.

Scientists have established that burning and tanning are caused by the same few wave lengths of ultra-violet energy in sunlight. They have also solved the problem of controlling the amount of these ultra-violet rays entering the skin by the use of chemical "screens."

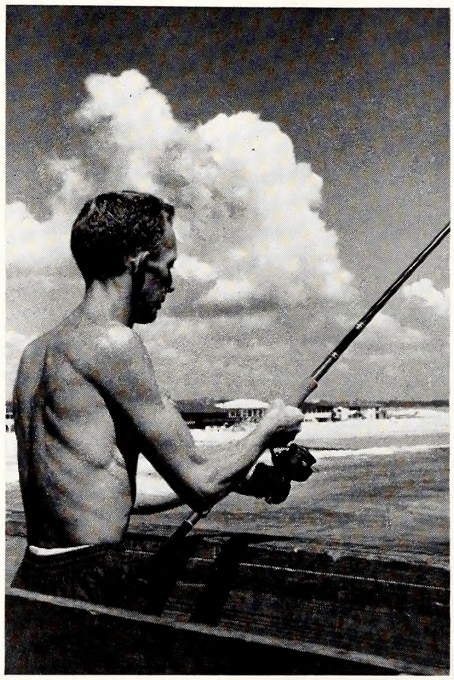
At the same time, some long-held beliefs about how to avoid burning on or at the water have been exploded.

A hat, boat awning or shade tree, for instance, can be deceptive —if they are relied on as the sole means of protection. While each of these will effectively block out the direct rays of the sun, they offer no protection from ultra-violet rays reflected off the water— and these can often burn as easily as direct exposure. A false sense of security can also come from light fog or thin cloud cover. These usually diffuse, rather than block, ultra-violet light and severe burns can result on hazy days.

While ultra-violet light reflected off sand and water is a danger in surfcasting or salt-water fishing, mountain lakes and streams carry their own particular brand of peril. This is because the thinner air makes ultra-violet rays stronger, and also because under cooler mountain conditions fishermen aren't as likely to feel the hot warnings of impending overexposure.

The delayed action of sunburning is another little-understood thing.

"Sunburn is the latent effect of ultra-violet energy. It is even possible to come home slightly red from a day's fishing, go to bed,



and wake up with a painful case of sunburn hours later," explains Archie Black, Ph.D., Research Director of the Coppertone Corporation, Miami, Florida.

Generally speaking, the danger of sunburn is greatest in June and July in the Northern Hemisphere —from about noon to 3 P.M. Dark-complexioned men are less sensitive than their fairer brethren.

While carefully increased exposures each day is Nature's way of building up a tan, the fisherman can lengthen his time in the sun with greater safety—thanks to chemistry.

In recent years sunscreening agents in the form of lotions and creams have been developed. These effectively filter out enough ultra-violet light to lessen the danger of burning, but not so much that natural tanning is prevented. The more sun-sensitive his skin, the more sunscreening agent a fisherman should use.

Dr. Black offers these six suggestions to anglers, especially those anxious to spend the maximum time in the sun in the first few days:

1. Remember that the intensity of the sun's burning rays is increased by reflection off water and sand; it is greatest around midday.

2. Don't forget your hat and long-sleeve clothing that can be used to control exposure.

3. Use a suntan product which contains a sunscreening agent from the very beginning. Select one which suits your complexion —the more sensitive your skin the greater the need of a sunscreening agent.

4. Repeat the application of suntan product at intervals during exposure.

5. Use sun glasses, a shield or other means of protecting the eyes from the intense rays of the sun.

6. If in any doubt, PLAY IT SAFE for the first few days.

The Irrepressible Lucretia

DEAR SIRS: I keep hearing about the Wildlife Commission wanting to eliminate the creel limits in many parts of the state. It seems to me that the creel ought to be protected just like any other fish, such as bass and trout. Don't the state fish biologists like creels? LUCRETIA PLYMPH, WAKE FOREST.

DEAR LUCRETIA: We think that the creel ought to be protected, especially when crawling among slippery rocks. Most of our biologists and many of our sports fishermen like to have creels around when they are fishing, even though an individual creel can hold more fish than a pelican can.—Ed.

Wants Magazine

Sally MacNider, University of North Carolina Library, Chapel Hill, needs a copy of the January, 1958 issue of *Wildlife*. If someone will send us a copy we will be glad to pass it along. It is to be used for library binding purposes.—Ed.

Bird Dog Trainers Note

DEAR SIRS: I am writing you for some information. If you can help me or tell me where to get this information I will appreciate it very much.

Quail hunting is my favorite sport. I have one dog, but find it very difficult to train her. If you can send me some information on how to train bird dogs I will be more than willing to pay for it.

Enjoy your magazine each month very much. ELLIOTT STEPHENSON, WELDON.

Some of our readers are dog trainers, and might lend a hand.

Want to see the Seagulls?

Gulls wheel to catch ferry riders' tidbits.

Members of the North Carolina Outdoor Writers Association met May 31 to discuss commercial and sports fishing problems at Morehead City. Here discussion leaders are shown at the home of Carteret Representative D. G. Bell.

There are good books on the subject, and maybe your local bookmobile can supply one.

DEAR SIRS: I am writing to ask if you would please send me your fish, game, and trapping laws.

I would appreciate a chart on the counties and streams. I am interested in trapping and would appreciate all the information you could send me on trapping in your state.

Hope to hear from you soon. No. 9415, WESTERN STATE PENITENTIARY, PITTSBURGH, PA.

(Note: As much material as we could get together was sent to No. 9415).

Bag Limit On Wood Ducks

DEAR SIRS: I have been taking Wildlife for the past four years, and if possible I'm going to take it the rest of my life. I am sixteen years old, and have been hunting since I was twelve. I would like to know why there is a one-a-day limit on the wood duck. I know several places where they come in by the hundreds and as far as I can see, I think the bag limit could and should be raised. Thank you for your cooperation. JACK WHITLEY, KINSTON.

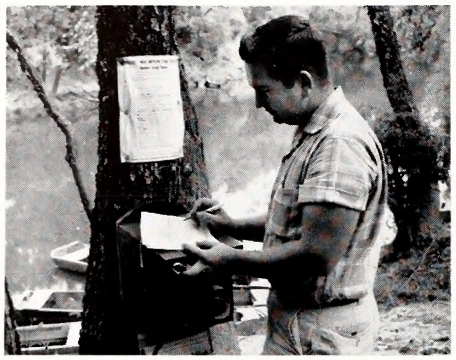
Although wood ducks are fairly abundant in North Carolina, they are scarce or rare in most of the Atlantic Flyway. For this reason the federal government limits the bag of wood ducks to one per day.—Ed.

Wren Box

DEAR SIRS: I made a wren box and made an opening with a 1¼" bib. Will this be large enough — or what size should it be? They built in our garage, but my husband does not want them in there and keeps the doors closed. I made two boxes and put them back of the garage on a wooden fence next to a fig orchard, but I am afraid they won't use the boxes. Do you have any suggestions?

We enjoy Wildlife so much. The article on blue birds was very interesting, but how could you get them to come and nest? I have only seen two in the eight or ten years I have lived here. MRS. R. E. SHACKELFORD, ELIZABETH CITY.

DEAR MRS. SHACKELFORD: Your letter relative to the nesting wren is most interesting. From the behavior of the bird described, the bird is in all probability the Carolina wren. This bird, may as a last resort, nest in a box. One of the interesting mannerisms of this bird is that it generally will nest in unpredictable places. We have had one to nest and raise its family in a clothes pin bag on our back porch; and now we have a family in an old shopping bag hung to a nail in our garage. These birds have been known to nest in old coat pockets hung up in garages, on top of mops leaned against a wall, and even on the resting side of power



Want to help biologists learn more about fishing success? Cooperate by recording your catch when you see creel census boxes.

lawn mowers. They just don't seem to take to houses. Your house is just right for the eastern house wren that may occasionally frequent the eastern part of our state, but it is rare.

Bluebirds have become scarce over the past few years and nowhere are they as numerous as in the past years. The influence of the hard winters and the hurricanes has greatly affected this bird's population in eastern United States. WILLIAM L. HAMNETT, WILDLIFE EDUCATION REPRESENTATIVE.

Llewellin Setter

DEAR SIRS: I have been taking Wildlife In North Carolina for a couple of years, and enjoy every minute of it, but my problem is I have tried for sometime to get a Luellen Setter, but just can't find one. Thought you might print this in Crackshots and Backlashes and someone would help me. WILLIAM SUTTON, ALBERTSON, N. C.

Ira L. Griste, 522 Raleigh, Lagrange Road, Memphis, Tennessee, advertises Llewellin Setters in *American Field* magazine. There are many other breeders, but we found this one in trying to find out how to spell the name of the breed. "Luellen" didn't look right.

Down comes the "No Fishing" sign from many coastal highway bridges following legislation sponsored by the N. C. Outdoor Writers Association.

Questions Policy

DEAR SIRS: Some of the boys around here were talking the other day about how the State Wildlife Resources Commission, which is financed by revenue derived from hunting and fishing licenses, provide game fish and supervise their planting by trained ichthyologists to any one who might have a pond. They advise the pond owner to fish the pond as much as possible to prevent over-abundance of fish, which if not done would consequently mean a pond full of runt fish.

Now the question is this, if these trained biologists and ichthyologists recommend hard fishing of a pond to keep it in balance, why are we, the sportsmen who buy the licenses which provide the necessary money to hire these experts subject to a limit of game fish, namely bass, bream, and speckled perch? Without more information on the face of it this does seem rather ridiculous.

A lot of the fellows around Elizabeth City fish in Currituck Sound regularly, and it is very unusual to catch a bass there that will weigh over three pounds. This according to your ichthyologists seems to indicate that the sound is overstocked and consequently the bass do not have a chance to acquire greater size. It is true that commercial fishermen in the sound frequently catch bass in the eight or nine pound class in their nets set in deep water, but as you know most sport fishermen generally fish close to the marsh banks around Currituck Sound.

I would greatly appreciate an answer to this, as not only I but a number of other sportsmen in this area are interested in your answer. A. E. WOOD, ELIZABETH CITY.

An honest question deserves an honest answer, however complicated both may be. The creel limits on panfish are gradually being removed, and have already been removed in and west of Granville, (except Kerr Reservoir where an agreement with Virginia prevents this) Durham, Chatham, Lee, Moore and Richmond counties. The limit on white perch has been removed in thirteen eastern counties including Currituck. Pan fish limits in the rest of the state will be removed as soon as public opinion will allow such action.

As to farm ponds, biologists encourage heavy bream fishing to remove competition for food that brings about stunted fish. Further, they urge pond owners to take all pan fish regardless of size and only bass that are large enough to spawn.

Extremely heavy fishing pressure in Currituck probably accounts for the scarcity of lunker class bass showing up in the creel.

(Lucretia please note: those creels really swallow up the game fish, don't they?—Ed.)

Double Play

DEAR SIRS: I have read your magazine for over a year, and really do enjoy it. It is the best magazine for the least money I have ever seen. Enclosed is a newspaper clipping that I thought might interest you. Unfortunately, I am not the boy in the picture, but my grandfather does own the lake. He ask me to write and send the clipping to Wildilfe. My grandfather and I are both great fishermen and fans of your magazine. The lake he has is a small pay lake near here. I am 15 years old and the lake was built just after I was born. There was a great number of large bass in it then. Several years ago the lake was drained and all the bass but a few big ones went out. Recently the lake was stocked with carp and catfish.

The story behind this picture is very unusual. The boy was fishing for catfish using shrimp for bait. He was reeling in when he got a hard strike. His dad told him to pull the fish on out and when he did it was a ten-pound bass. The strange part is that he didn't catch the bass on the shrimp but on a catfish. When they examined the bass they found a six-inch catfish in his stomach and the hook and a piece of shrimp in the catfish's stomach. I know this sounds like a real fish story but it all true. I hope I got the story together so you can understand it.

I just thought you might like to hear of some of the fishing in our part of the state. As far as I know it's the biggest bass ever caught in this neck of the woods. Keep up the good work with Wildlife Magazine. We really like it! BILLY WATTERSON, SHELBY.

Thanks a million. Wish we could have used the picture.—Ed.

Baby Crows

DEAR SIRS: In your Wildlife Magazine for May Gene Brown of Durham was asking about getting a baby crow and would they make good pets. Well I have

one. We got him about this time last year and I raised him on bread and milk, hamburger, and cheese. He is grown now, and at times very affectionate, but then at times he can be very mischievous by hiding things and hopping just so far in front of you so you can't catch him.

We never need an alarm clock in the summer as he comes at 5:30 to our bedroom window and makes a noise until I get up. Then he goes away.

Enclosed is $1.00 for a two-year renewal for the magazine. MRS CLAUDE JOHNSON, WAYNESVILLE.

Safe Colors

DEAR SIRS: Referring to the December 1958 issue of the Wildlife in North Carolina, on the rear cover of same, an article titled "What is the Safest Color for Hunting?"

I do not know where those various agencies went to take their findings regarding the various colors concerning their ratings for those six colors tested. Their contention may be correct in some other location of the country, but it will not hold up here in the mountains of western North Carolina where we have such a wide variety of colors in the woods especially in the fall of the year during the hunting season.

Last fall during the deer season, a group of hunters, yours truly included, gave some of those colors a try out here in the woods at various times of the day, when the weather was cloudy and when it was clear, early morning and late afternoon, in the open and in the shadows, and in the deep where there is mountain laurel and ivy. The only time of the day that the yellow showed up best anywhere was real early in the morning, and in the late afternoon. At all other times the red colors showed up the best, especially in the woods during the daytime. The reason for this here in the mountains is that there is not anything else in the woods on the ground that is red. Whereas, there are bushes that show up yellow, some are brown, some are tan. Then there are those dead chestnut logs laying around everywhere which may be of a variety of gray and tan colors. Then there are the small holly bushes, ivy, and mountain laurel, along with a variety of other green shrubbery all over the woods which make the green colors, the blue colors, and the plaids a lousy choice for the hunter's safety.

Therefore, I would strongly recommend that the bright red colors be used here in the mountains of western North Carolina for the reasons mentioned above.

I am a retired Army man, was in the Army from the mid-twenties until mid-forties, at which time I was compelled to retire from the Army because of physical disabilities. During my years in the Service I was very active in the field, and saw many colors experimented with. And since retiring I have been active in the woods for recreation and hunting, and I find that bright red is the most discernible color in these mountains. LEROY RACKLEY, PISGAH FOREST

We are glad to have this information and pass it on to others of our readers who may care to shed more light on the colorful picture.

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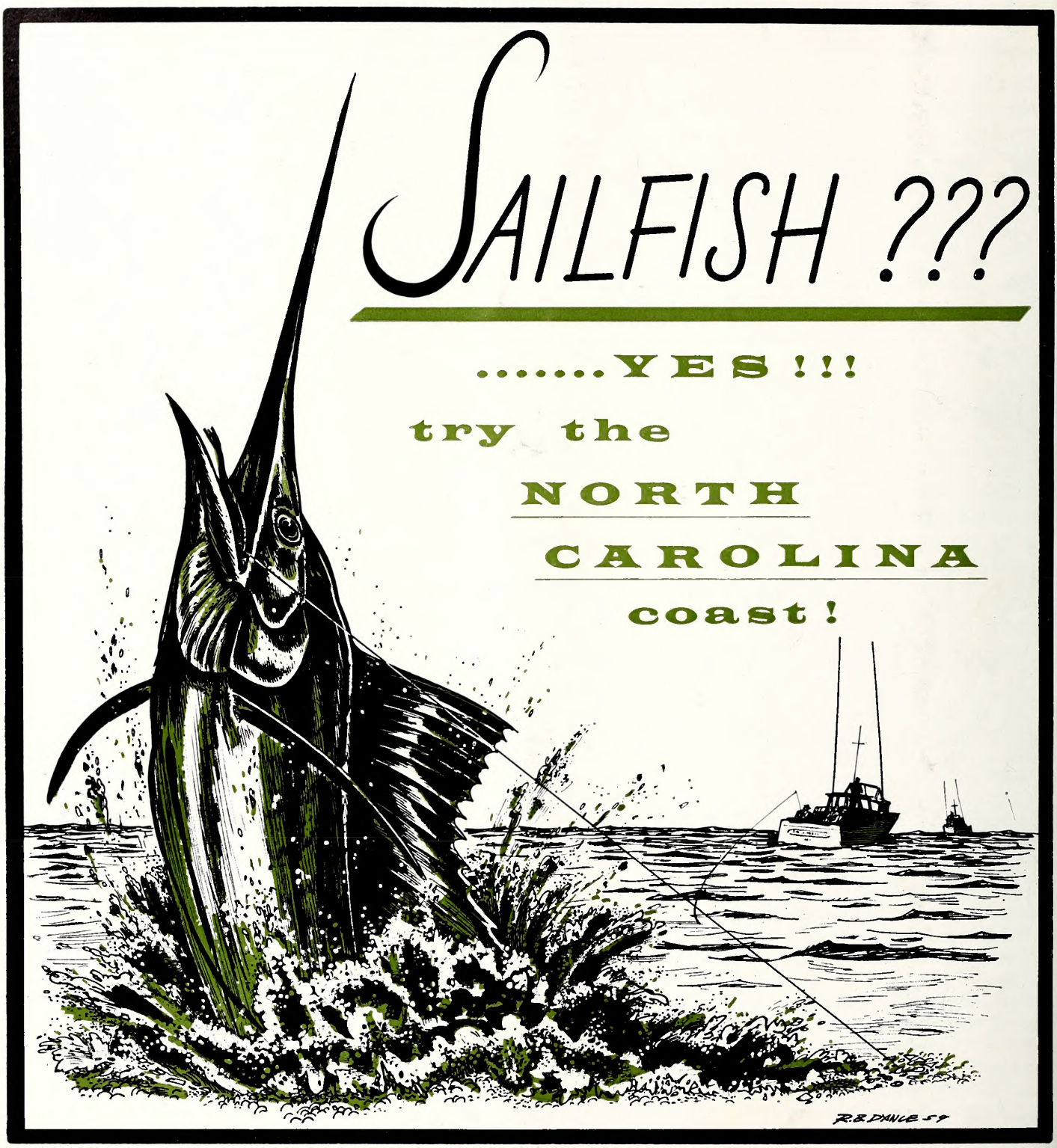

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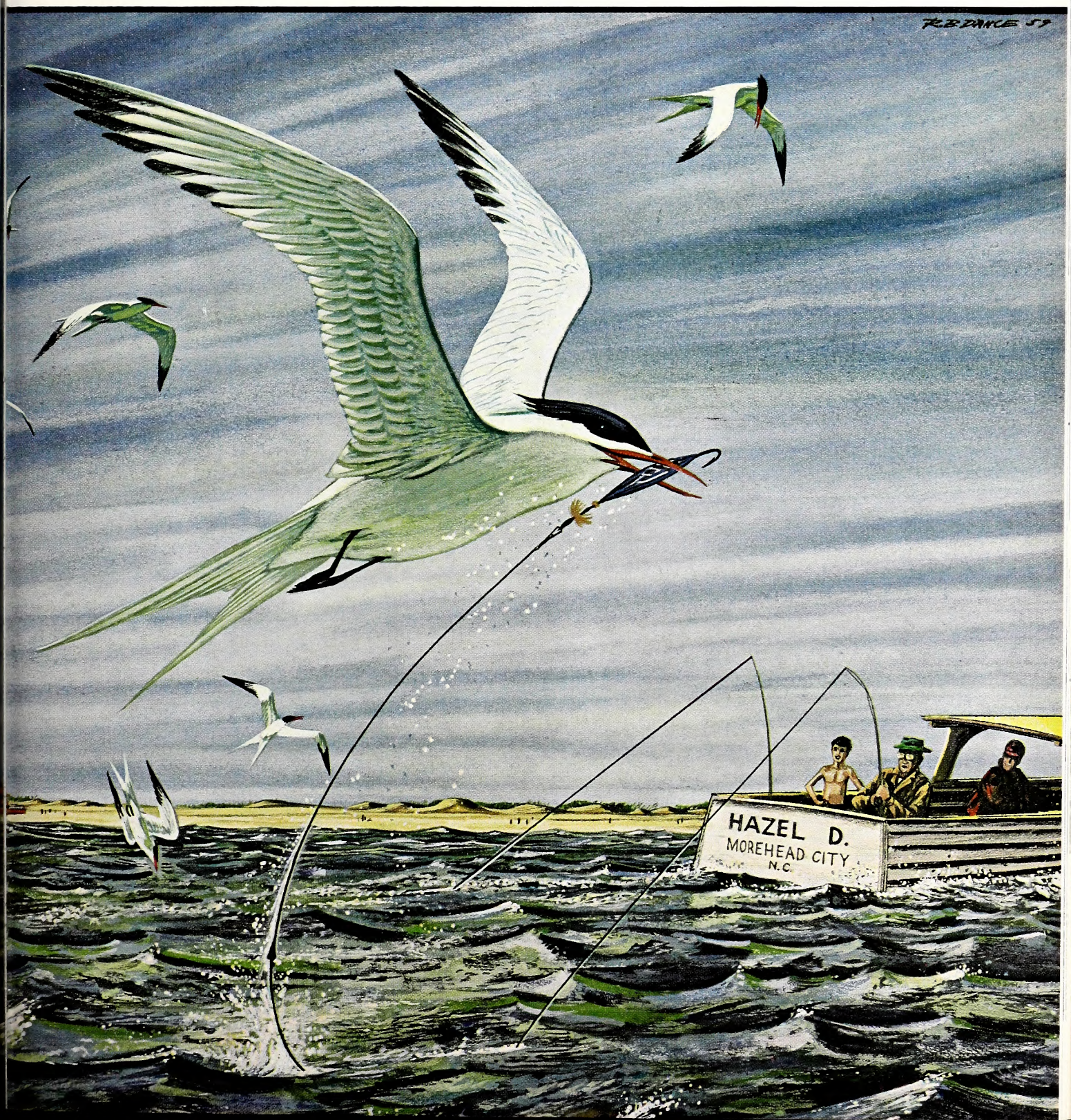

Photo by Jack Dermid

End of Happy Day

The little girl takes one last look at the farm pond before leaving. She had a wonderful time. The fish were biting, and although they were not whoppers, she thrilled at every tug on the line. And you can bet that Mom will have to cook them for supper! The picture tells two more stories: It is fun to take a youngster fishing, and it is good conservation to keep the small panfish so that those remaining in the farm pond will have more room to grow into bigger and better scrappers.

State of North Carolina
LUTHER H. HODGES
Governor

North Carolina
Wildlife Resources Commission

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Wildlife IN NORTH CAROLINA

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COVER

August is one of the traditional months for off-shore fishing from charter boats along the Carolina coast. Artist Bob Dance has portrayed a scene that doesn't happen very often, but occurs frequently enough to prove that when fishing North Carolina waters anything can happen. The graceful royal terns, skimming over the water searching for small fish occasionally mistake an angler's lure for something to eat. Versatile artist Dance also contributed this month's back cover, a reminder to keep your pets penned up—a sure way to reduce wildlife loss.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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The 1959 Boating Bill

The 1959 session of the General Assembly enacted House Bill 773—"An Act to Regulate the Operation of Watercraft on the Waters of the State." This bill vitally affects everyone who uses a boat—for fishing or for cruising. Save these pages; you'll want to refer to them again when the act becomes effective in North Carolina on January 1.

The General Assembly of North Carolina do enact:

Section 1. It is the policy of this State to promote safety for persons and property in and connected with the use, operation, and equipment of vessels, and to promote uniformity of laws relating thereto.

Sec. 2. As used in this Act, unless the context clearly requires a different meaning:

(1) "Vessel" means every description of watercraft, other than a seaplane on the water, used or capable of being used as a means of transportation on water,

(2) "Motorboat" means any vessel propelled by machinery of more than ten horsepower, whether or not such machinery is the principal source of propulsion, but shall not include a vessel which has a valid marine document issued by the Bureau of Customs of the United States Government or any federal agency successor thereto.

(3) "Owner" means a person, other than a lien holder, having the property in or title to a motorboat. The term includes a person entitled to the use or possession of a motorboat subject to an interest in another person, reserved or created by agreement and securing payment or performance of an obligation, but the term excludes a lessee under a lease not intended as security.

(4) "Waters of this State" means any public waters within the territorial limits of this State, and the marginal sea adjacent to this State and the high seas when navigated as a part of a journey or ride to or from the shore of this State.

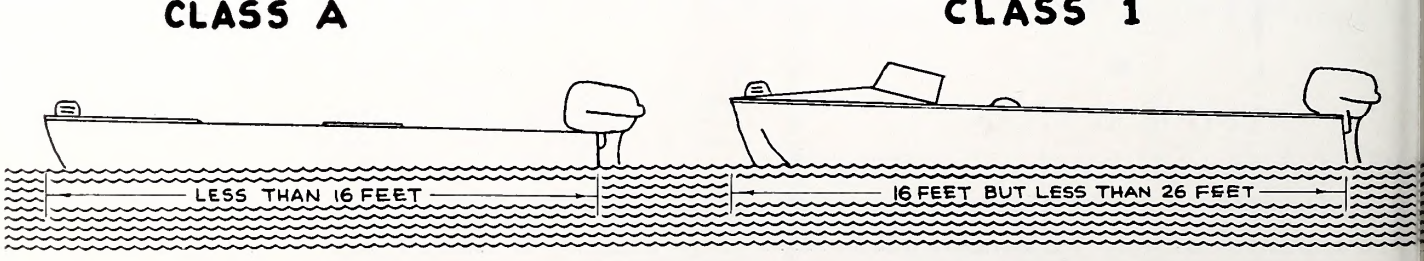
(5) "Person" means an individual, partnership, firm, corporation, association, or other entity.

(6) "Operate" means to navigate or otherwise use a motorboat or a vessel.

Sec. 3. (a) It shall be the duty and responsibility of the North Carolina Wildlife Resources Commission to enforce and administer the provisions of this Act.

(b) The Chairman of the Wildlife Resources Commission shall designate from among the members of the Wildlife Resources Commission three members who shall serve as the Motorboat Committee of the Wildlife Resources Commission, and who shall, in their activities with the Commission, place special emphasis on the administration and enforcement of this Act.

(c) All expenses required for administration and enforcement of this Act shall be paid from the funds collected pursuant to the numbering provisions of this Act, provided however, that the Wildlife Resources Commission is hereby authorized, subject to the approval of the Advisory Budget Commission and the Governor and Council of State, to borrow funds from the Contingency and Emergency Fund in an amount not to exceed one hundred thousand dollars ($100,000.00), to be used for initiating the provisions of this Act and to be repaid within two years from the funds collected pursuant to the numbering provisions of this Act. All monies collected pursuant to the numbering provisions of this Act shall be deposited in the State Treasury and credited to a special fund known as the Wildlife Resources Fund and accounted for as a separate part thereof. The said monies shall be made available to the Wildlife Resources Commission, subject to the provisions of the Executive Budget Act and the provisions of the Personnel Act of the General Statutes of North Carolina, for the administration and enforcement of this Act as herein provided and for educational activities relating to boating safety and for no other purpose. All monies collected pursuant to the numbering provisions of this Act and monies otherwise provided for in this Act shall be made available to carry out the intent and purposes as set forth herein in accordance with plans approved by the Wildlife Resources Commission and all such funds are hereby appropriated, reserved, set aside and made available until expended for the enforcement and administration of this Act; provided that the Wildlife Resources Commission is hereby authorized to adopt a plan or formula for the use of said monies for employing and equipping such



additional personnel as may be necessary for carrying out the provisions of this Act and for paying a proportionate share of the salaries, expense, and operational costs of existing personnel according to the time and effort expended by them in carrying out the provisions of this Act. Such plan or formula may be altered or amended from time to time by the Wildlife Resources Commission as existing conditions may warrant. No funds derived from the sale of hunting licenses or fishing licenses shall be expended or diverted for carrying out the provisions of this Act.

Sec. 4. Every motorboat on the waters of this State shall be numbered. No person shall operate or give permission for the operation of any motorboat on such waters unless the motorboat is numbered in accordance with this Act, or in accordance with applicable federal law, or in accordance with a federally approved numbering system of another state, and unless (1) the certificate of number awarded to such motorboat is in full force and effect, and (2) the identifying number set forth in the certificate of number is displayed on each side of the bow of such motorboat.

Sec. 5. (a) The owner of each motorboat requiring numbering by this State shall file an application for number with the Wildlife Resources Commission on forms approved by it. The application shall be signed by the owner, or his agent, of the motorboat and shall be accompanied by a fee of three dollars ($3.00). Upon receipt of the application in approved form the Commission shall have the same entered upon the records of its office and issue to the applicant a certificate of number stating the number awarded to the motorboat and the name and address of the owner. The owner shall paint on or attach to each side of the bow of the motorboat the identification number in such manner as may be prescribed by rules and regulations of the Commission in order that it may be clearly visible. The number shall be maintained in legible condition. The certificate of number shall be pocket-size and shall be available at all times for inspection on the motorboat for which issued, whenever such motorboat is in operation.

(b) The owner of any motorboat already covered by a number in full force and effect which has been awarded to it pursuant to then operative federal law or a federally approved numbering system of another state shall record the number prior to operating the motorboat on the waters of this State in excess of the ninety-day reciprocity period provided for in Section 7 (1) of this Act. Such recordation shall be in the manner and pursuant to the procedure required for the award of a number under subsection (a) of this section, except that no additional or substitute number shall be issued.

(c) Should the ownership of a motorboat change, a new application form with fee of one dollar ($1.00) shall be filed with the Wildlife Resources Commission and a new certificate bearing the same number shall be awarded in the manner as provided for in an original award of number. In case a certificate should become lost, a new certificate bearing the same number shall be issued upon payment of a fee of fifty cents ($ .50). Possession of the certificate shall in cases involving prosecution for violation of any provision of this Act be prima-facie evidence that the person whose name appears thereon is the owner of the boat referred to therein.

(d) In the event that an agency of the United States Government shall have in force an over-all system of identification numbering for motorboats within the United States, the numbering system employed pursuant to this Act by the Wildlife Resources Commission shall be in conformity therewith.

(e) The Wildlife Resources Commission may award any certificate of number directly or may authorize any person to act as agent for the awarding thereof. In the event that a person accepts such authorization, he may be assigned a block of numbers and certificates therefor which upon award, in conformity with this Act and with any rules and regulations of the Commission, shall be valid as if awarded directly by the Commission.

(f) All records of the Wildlife Resources Commission made or kept pursuant to this section shall be public records.

(g) Every certificate of number awarded pursuant to this Act shall continue in full force and effect for a period of one year unless sooner terminated or discontinued in accordance with the provisions of this Act. Certificates of number may be renewed by the owner in the same manner provided for in the initial securing of the same.

(h) Each certificate of number awarded pursuant to this Act must be renewed each year on or before January 1; otherwise, such certificate shall lapse and be void. Application for renewal shall be submitted on forms approved by the Wildlife Resources Commission and shall be accompanied by a fee of three dollars ($3.00).

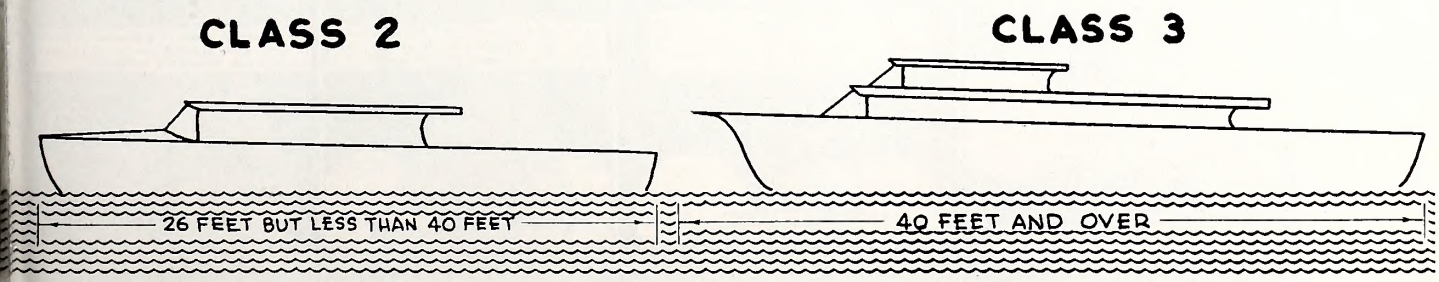
(i) The owner shall furnish the Wildlife Resources Commission notice of the transfer of all or any part of his interest other than the creation of a security interest in a motorboat numbered in this State pursuant to subsections (a) and (b) of this section or of the destruction or abandonment of such motorboat, within fifteen days thereof. Such transfer, destruction, or abandonment shall terminate the certificate of number for such motorboat except that, in the case of a transfer of a part interest which does not affect the owner's right to operate such motorboat, such transfer shall not terminate the certificate of number.

(j) Any holder of a certificate of number shall notify the Wildlife Resources Commission within fifteen days if his address no longer conforms to the address appearing on the certificate, and shall, as a part of such notification, furnish the Commission his new address. The Commission may provide in its rules and regulations for the surrender of the certificate bearing the former address and its replacement with a certificate bearing the new address or for the alteration of an outstanding certificate to show the new address of the holder.

(k) No number other than the number awarded to a motorboat or granted reciprocity pursuant to this Act shall be painted, attached, or otherwise displayed on either side of the bow of such motorboat.

Sec. 6. (a) Motorboats subject to the provisions of this Act shall be divided into four classes as follows:

(1) Class A. Less than sixteen feet in length.
(2) Class 1. Sixteen feet or over and less than twenty-six feet in length.
(3) Class 2. Twenty-six feet or over and less than forty feet in length.
(4) Class 3. Forty feet or over.



(b) Every motorboat in all weathers from sunset to sunrise shall carry and exhibit the following lights when under way, and during such times no other lights which may be mistaken for those prescribed shall be exhibited:

(1) Class A shall carry a white light to show all around the horizon. Class 1 shall carry a combined lantern in the fore part of the vessel and lower than the white light aft, showing green to starboard and red to port, so fixed as to throw light from right ahead to two points abaft the beam on their respective sides.

(2) Every motorboat of Classes 2 and 3 shall carry the following lights:

a. A bright white light in the fore part of the vessel as near the stem as practicable, so constructed as to show an unbroken light over an arc of the horizon of twenty points of the compass so fixed as to throw the light ten points on each side of the vessel; namely, from right ahead to two points abaft the beam on either side.

b. A bright white light aft to show all around the horizon and higher than the white light forward.

c. On the starboard side a green light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the starboard side. On the port side a red light so constructed as to show an unbroken light over an arc of the horizon of ten points of the compass, so fixed as to throw the light from right ahead to two points abaft the beam on the port side. The said side lights shall be fitted with inboard screens of sufficient height so set as to prevent these lights from being seen across the bow.

(3) Motorboats of Classes A and 1 when propelled by sail alone shall carry the combined lantern, but not the white light aft prescribed by this section. Motorboats of Classes 2 and 3 when so propelled, shall carry the colored side lights, suitably screened, but not the white lights prescribed by this section. Motorboats of all classes, when so propelled, shall carry, ready at hand, a lantern or flashlight showing a white light which shall be exhibited in sufficient time to avert collision.

(4) Every white light prescribed by this section shall be of such character as to be visible at a distance of at least two miles. Every colored light prescribed by this section shall be of such character as to be visible at a distance of at least one mile. The word "visible" in this subsection, when applied to lights, shall mean visible on a dark night with clear atmosphere.

(5) When propelled by sail and machinery any motorboat shall carry the lights required by this section for a motorboat propelled by machinery only.

(c) Any vessel may carry and exhibit the lights required by the Federal Regulations for Preventing Collisions at Sea, 1948, Federal Act of October 11, 1951, (33 USC 143-147d) as amended, in lieu of the lights required by subsection (b) of this section.

(d) Every motorboat of Classes 1, 2, or 3 shall be provided with an efficient whistle or other sound-producing mechanical appliance.

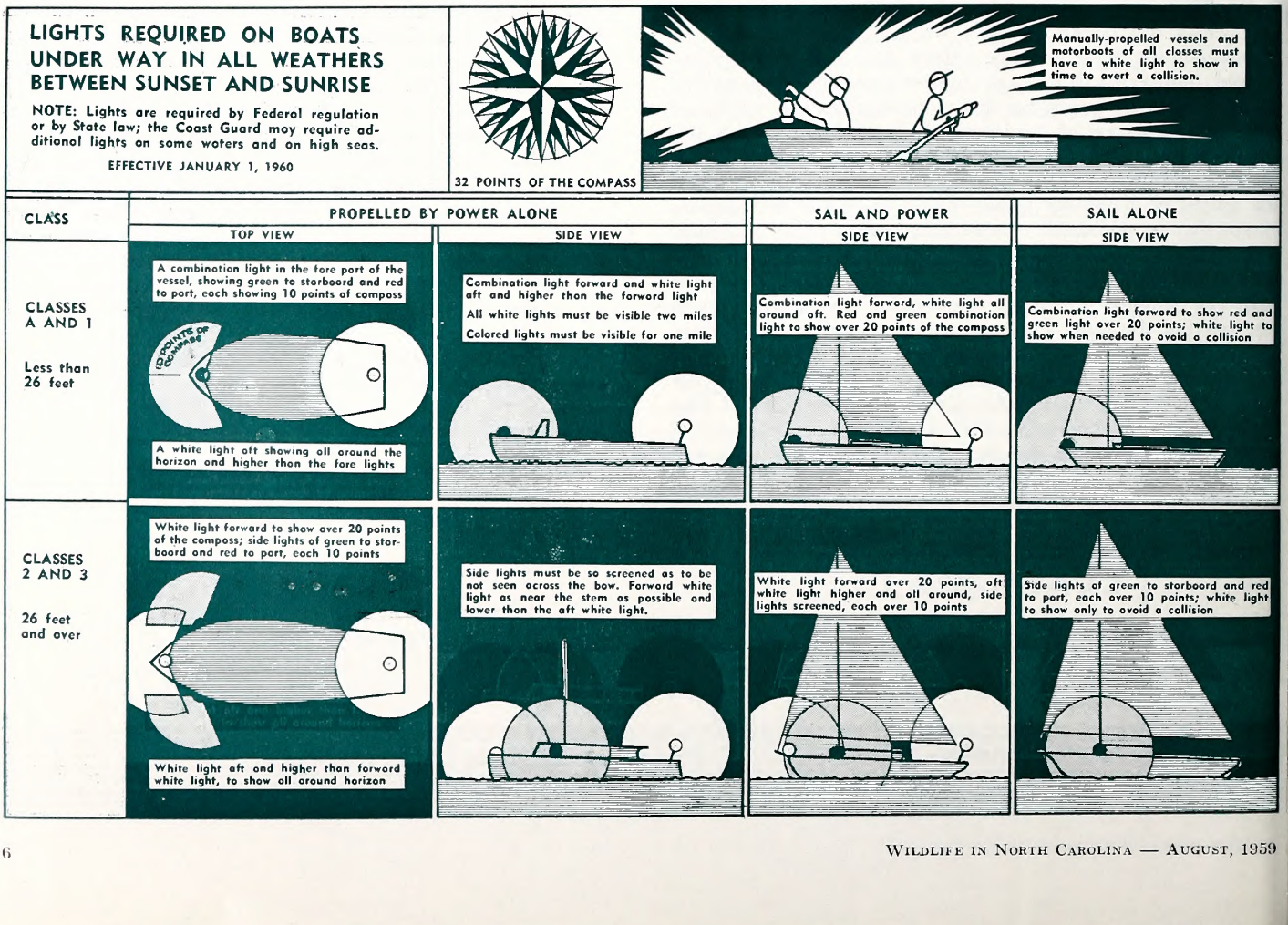
(e) Every motorboat of Classes 2 or 3 shall be provided with an efficient bell.

(f) Every motorboat shall carry at least one life preserver, or life belt, or ring buoy, or other device of the sort prescribed by the regulations of the Wildlife Resources Commission for each person on board, so placed as to be readily accessible: Provided, **that every motorboat carrying passengers for hire shall carry so placed as to be readily accessible at least one life preserver of the sort prescribed by the regulations of the Commission for each person on board.**

(g) Every motorboat shall be provided with such number, size, and type of fire extinguishers, capable of promptly and effectually extinguishing burning gasoline, as may be prescribed by the regulations of the Wildlife Resources Commission, which fire extinguishers shall be at all times kept in condition for immediate and effective use and shall be so placed as to be readily accessible.

(h) The provisions of subsections (d), (e), and (g) of this section shall not apply to motorboats while competing in any race conducted pursuant to Section 14 of this Act or, if such boats be designed and intended solely for racing, while engaged in such navigation as is incidental to the tuning up of the boats and engines for the race.

(i) Every motorboat shall have the carburetor or carburetors of every engine therein (except outboard motors) using gasoline as fuel, equipped with such efficient flame arrestor, back-



fire trap, or other similar device as may be prescribed by the regulations of the Wildlife Resources Commission.

(j) Every such motorboat and every such vessel, except open boats, using as fuel any liquid of a volatile nature, shall be provided with such means as may be prescribed by the regulations of the Wildlife Resources Commission properly and efficiently ventilating the bilges of the engine and fuel tank compartments so as to remove any explosive or inflammable gasses.

(k) The Wildlife Resources Commission is hereby authorized to make rules and regulations modifying the equipment requirements contained in this section to the extent necessary to keep these requirements in conformity with the provisions of the Federal Navigation Laws or with the navigation rules promulgated by the United States Coast Guard.

(l) No person shall operate or give permission for the operation of a vessel which is not equipped as required by this section or modification thereof.

(m) In the event that any of the regulations of subsections (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), and (l) of Section 6 are in conflict with the equipment regulations of the Federal Motorboat Act of 1958 as amended, the Wildlife Resources Commission is hereby granted the authority to adopt such regulations as are necessary to conform with the Federal Motorboat Act of 1958 as amended.

Sec. 7. A motorboat shall not be required to be numbered under this Act if it is:

(1) A motorboat which is required to be awarded a number pursuant to Federal law or a Federally approved numbering system of another state, and for which a number has been so awarded: **Provided,** that any such boat shall not have been within this State for a period in excess of ninety consecutive days.

(2) A motorboat from a country other than the United States temporarily using the waters of this State.

(3) A motorboat whose owner is the United States, a state or a subdivision thereof.

(4) A ship's lifeboat.

Sec. 8. It shall be unlawful for the owner of a boat livery to rent a boat equipped with more than ten horsepower to any person unless the provisions of this Act have been complied with. It shall be the duty of owners of boat liveries to equip all motorboats rented as required by this Act.

Sec. 9. The exhaust of every internal combustion engine used on any motorboat shall be effectively muffled by equipment so constructed and used as to muffle the noise of the exhaust in a reasonable manner. The use of cut-outs is prohibited, except for motorboats competing in a regatta or boat race approved as provided in Section 14 of this Act, and for such motorboats while on trial runs, during a period not to exceed forty-eight hours immediately preceding such regatta or race and for such motorboats while competing in official trials, for speed records during a period not to exceed forty-eight hours immediately following such regatta or race.

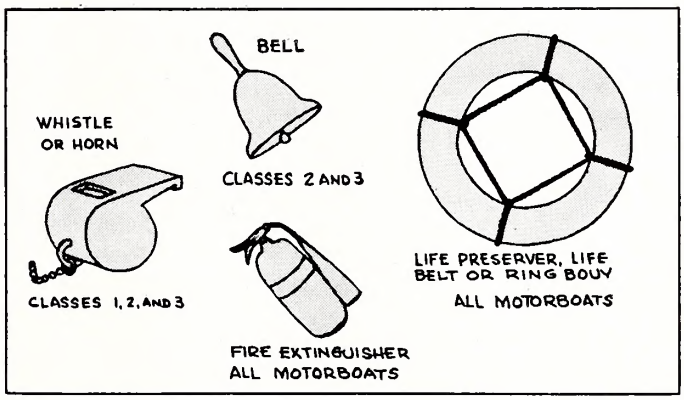
Sec. 10. (a) No person shall operate any motorboat or vessel, or manipulate any water skis, surfboard, or similar device in a reckless or negligent manner so as to endanger the life, limb, or property of any person.

(b) No person shall operate any motorboat or vessel, or manipulate any water skis, surfboard, similar device while intoxicated or under the influence of any narcotic drug, barbiturate, or marijuana.

Sec. 11. (a) It shall be the duty of the operator of a vessel involved in a collision, accident, or other casualty, so far as he can do so without serious danger to his own vessel, crew, and passengers (if any), to render persons affected by the collision, accident, or other casualty such assistance as may be practicable and as may be necessary in order to save them from or minimize any danger caused by the collision, accident, or other casualty, and also to give his name, address, and identification of his vessel in writing to any person injured and to the owner of any property damaged in the collision, accident, or other casualty.

(b) In the case of collision, accident, or other casualty involving a vessel, the operator thereof, if the collision, accident, or other casualty results in death or injury to a person or damage to property in excess of one hundred dollars ($100.00), shall, within ten days, file with the Wildlife Resources Commission a full description of the collision, accident, or other casualty, including such information as said agency may, by regulation, require. Such report shall not be admissible as evidence.

Sec. 12. In accordance with any request duly made by an authorized official or agency of the United States, any information compiled or otherwise available to the Wildlife Resources Commission pursuant to Section 11 (b) shall be transmitted to said official or agency of the United States.



Sec. 13. (a) No person shall operate a vessel on any waters of this State for towing a person or persons on water skis, or a surfboard, or similar device unless there is in such vessel a person, in addition to the operator, in a position to observe the progress of the person or persons being towed or unless the skiers wear a life preserver or unless the boat is equipped with a rear view mirror.

(b) No person shall operate a vessel on any water of this State towing a person or persons on water skis, a surfboard, or similar device, nor shall any person engage in water skiing, surfboarding, or similar activity at any time between the hours from one hour after sunset to one hour before sunrise.

(c) The provisions of subsections (a) and (b) of this section do not apply to a performer engaged in a professional exhibition or a person or persons engaged in an activity authorized under Section 14 of this Act.

(d) No person shall operate or manipulate any vessel, tow rope, or other device by which the direction or location of water skis, a surfboard, or similar device may be affected or controlled in such a way as to cause the water skis, surfboard, or similar device, or any person thereon to collide with any object or person.

Sec. 14. (a) The Wildlife Resources Commission may authorize the holding of regattas, motorboat, or other boat races, marine parades, tournaments, or exhibitions on any waters of this State. It shall adopt and may, from time to time, amend regulations concerning the safety of motorboats and other vessels and persons thereon, either observers or participants. Whenever a regatta, motorboat, or other boat race, marine parade, tournament, or exhibition is proposed to be held, the person in charge thereof, shall, at least fifteen days prior thereto, file an application with the Wildlife Resources Commission for permission to hold such regatta, motorboat, or other boat race, marine parade, tournament, or exhibition. The application shall set forth the date, time and location where it is proposed to hold such regatta, motorboat, or other boat race, marine parade, tournament, or exhibition, and it shall not be conducted without authorization of the Wildlife Resources Commission in writing.

Continued on Next Page

BOATING BILL (From Page 7)

(b) The provisions of this section shall not exempt any person from compliance with applicable federal law or regulation, but nothing contained herein shall be construed to require the securing of a State permit pursuant to this section if a permit therefor has been obtained from an authorized agency of the United States.

Sec. 15. (a) Any subdivision of this State, may at any time, but only after public notice, make formal application to the Wildlife Resources Commission for special rules and regulations with reference to the safe and reasonable operation of vessels on any water within its territorial limits and shall set forth therein the reasons which make such special rules or regulations necessary or appropriate.

(b) The Wildlife Resources Commission is hereby authorized to make special rules and regulations with reference to the safe and reasonable operation of vessels on any waters within the territorial limits of any subdivision of this State; provided however, that such rules and regulations governing the operation of vessels on State-owned lakes shall be made exclusively by the Department of Conservation and Development.

Sec. 16. A copy of the regulations adopted pursuant to this Act, and of any amendments thereto, shall be filed in the office of the Wildlife Resources Commission and in the office of the Secretary of State of North Carolina and in the office of the clerks of the superior courts of the counties in which such boats are operated. Rules and regulations shall be published by the Wildlife Resources Commission in a convenient form, and a copy of such rules and regulations shall be furnished each owner who secures a certificate of number pursuant to this Act.

Sec. 17. (a) Every wildlife protector and every other law enforcement officer of this State and its subdivisions shall have the authority to enforce the provisions of this Act and in the exercise thereof shall have authority to stop any vessel subject to this Act; and, after having identified himself in his official capacity, shall have authority to board and inspect any vessel subject to this Act.

(b) In order to secure broader enforcement of the provisions of this Act, the Wildlife Resources Commission is authorized to enter into an agreement with the Department of Conservation and Development whereby the enforcement personnel of the Commercial Fisheries Division shall assume responsibility for enforcing the provisions of this Act in the territory and area normally policed by such enforcement personnel and whereby the Wildlife Resources Commission shall contribute a share of the expense of such personnel according to a ratio of time and effort expended by them in enforcing the provisions of this Act, when such ratio has been agreed upon by both of the contracting agencies. Such agreement may be modified from time to time as conditions may warrant.

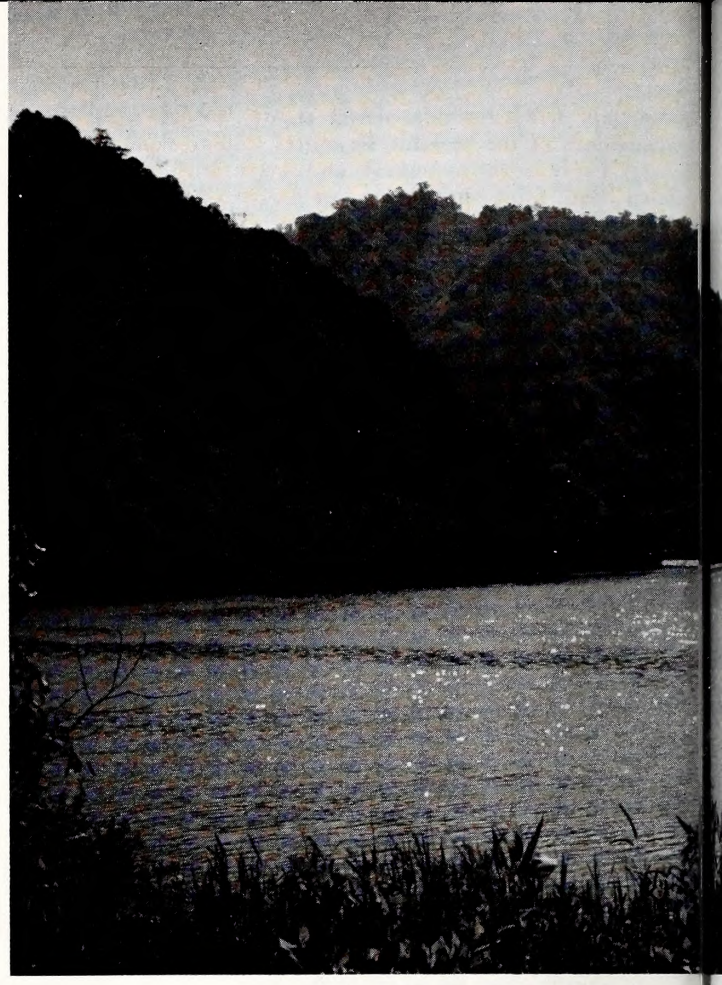
Sec. 18. (a) Any person who violates any provision of Sections 4, 5, 6, 8, 9, 11, 13, and 14 of this Act shall be guilty of a misdemeanor and shall be subject to a fine of not to exceed fifty dollars ($50.00) for each such violation.

(b) Any person who violates any provision of Section 10 of this Act shall be guilty of a misdemeanor and shall be subject to a fine of not to exceed five hundred dollars ($500.00) or imprisonment for not to exceed six months, or both, for each violation.

Sec. 18½. Provided however that notwithstanding any other provisions of this Act, the Wildlife Resources Commission may promulgate such rules and regulations regarding the operation of watercraft by manufacturers, distributors, dealers, and demonstrators as the Commission may deem necessary and proper.

Sec. 19. All laws and clauses of laws in conflict with this Act are hereby repealed.

Sec. 20. This Act shall be in full force and effect from and after January 1, 1960.



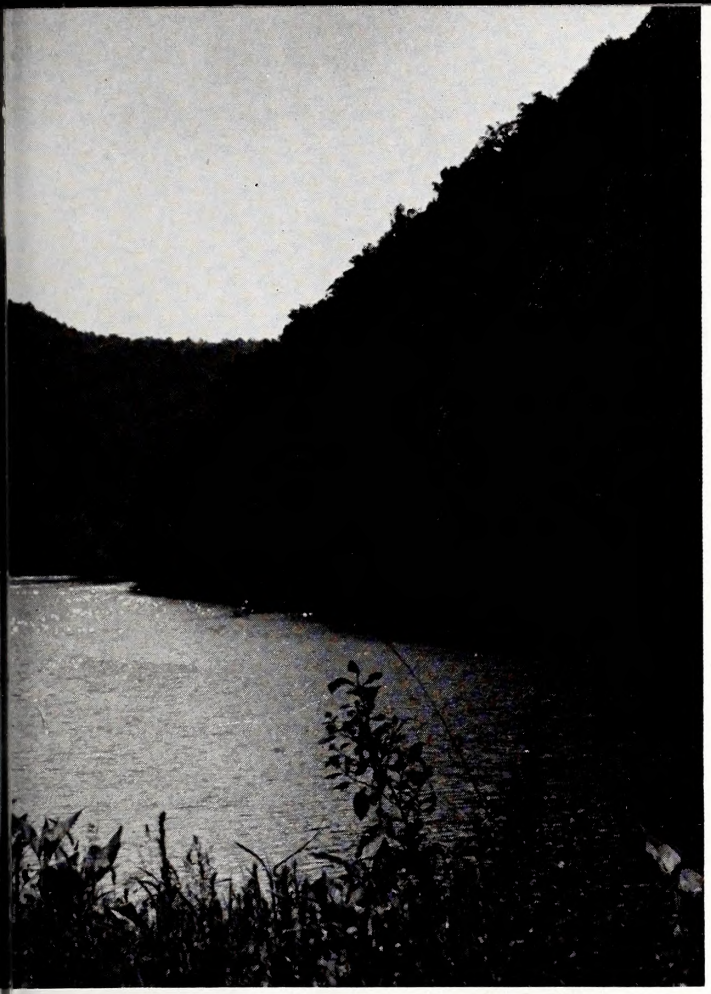
LAKE

By Duane Raver

ALL summer long, up until about September 15, twenty-nine major lakes and reservoirs from Hiwassee to Kitty Hawk will be examined from top to bottom by fishery biologists of the Wildlife Resources Commission. First of all, why?

In some ways a lake survey might be compared with a physical check-up by a physician. Not always are we sick before we have these examinations—some are protective. So with lakes—if the fishing is good, let's see why and try to keep it that way. If something's wrong, find it and correct it. Unfortunately this is not always possible, but an annual check-up is a good thing for lakes. No doctor would attempt to prescribe treatment without a thorough examination and a careful diagnosis. Management of a lake is also based on what the water contains and factors present—those things found during an "examination".

Major lakes and reservoirs in each of the Wildlife Commission's nine districts are selected several months before the field work is done. Equipment



Photos by Jim Lee

SURVEYS

Surveying a lake is like a visit with the doctor—sometimes a lake is ailing and needs attention; often it's an annual check-up.

for the investigation is readied and necessary personnel organized. Since only a few days can be allotted to each piece of water, a precise sequence of activities is worked out in advance.

Usually a base camp is set up on the shores of the lake to be worked so that travel time will be kept at a minimum. Equipment to be used in the survey is arranged and the probing of the water begun. One of the main objectives of the tests conducted is to obtain a picture of the fish population. This means that fish sampling methods of several types will be needed. One of the first methods used is employed very soon after the headquarters is established. This is the trammel net. This type of net looks a great deal like a gill net except that it has three pieces of netting hung on one line. It is made up of two outer walls of heavy, very large mesh webbing and an inner section of fairly small mesh. Fish of many sizes and varieties tangle themselves in trammel nets thus providing part of the fish population picture. Experimental gill nets are also used and both nets (several of each type) are set at annually-used locations in water of various depths.

If time permits on the first day, two or more coves are sounded and measured for use as rotenone sample areas the following day. These sites are used year after year unless water conditions make them unsuitable. The size varies from ¾ to 3 acres with a maximum depth of around 12 feet. Most coves will be six feet deep or less with a surface area of one or two acres and will represent as nearly as possible, the various habitat types of the entire lake. These tiny slivers out of the big "cake", we hope, will tell us the composition of the fish population.

After the nets are run the morning of the second day and all the fish counted, weighed and recorded, the survey crew heads for the sampling coves. Rotenone is used as a liquid to kill all the fish in the selected cove. The mouth of the cove is "closed" with a curtain of diluted rotenone pumped through a perforated plastic hose and then the rotenone is sprayed evenly over the area. Only the boat carrying the spray crew operates in the cove until all the rotenone is applied. Fish begin surfacing in a few minutes, depending on water temperature, and personnel equipped with long-handled dip nets begin scooping up struggling fish. This collection may take a couple of hours and processing the fish usually takes up the remainder of the day. By the morning of the second day, the rest of the fish that were killed in the area, but which sank, are now floating and are picked up. These are recorded on special forms provided for the data.

With the rotenone areas cleaned up and the nets run for a second time, the crew begins a series of tests on the water itself. Water temperatures are taken from the bottom to the top using an electronic thermometer. These temperature "profiles" are valuable to the fisherman as well as the biologist. Along with this temperature testing, water samples are collected and analyzed for dissolved oxygen, acidity, and other chemical tests. The remainder of the third day may be spent in checking spawning sites, vegetation beds, and other areas for comparison with previous year's information. And, then, on to another lake on the schedule.

These surveys provide information used in the formulation of sound fishing regulations, show where a new species might be introduced to advantage, point up areas where additional fish harvest is needed, often determine the sources and effects of pollution, and provide the fishing public with information on where, when and how to catch fish. The surveys are not a magic rite that automatically assures good fishing, but they do help in telling us how to better manage our inland waters for better fishing.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Fishing Access Area Added

A new fishing access area was opened for fishermen on the Fourth of July when the Contentnea Creek area in Greene County was completed. Built on land donated by J. Exum & Company of Snow Hill, the new facility provides access to Contentnea Creek, one of eastern North Carolina's favorite warm-water streams. In addition to receiving the land as a gift, the expense to sportsmen was further reduced when the town of Snow Hill, where the area is located, provided a road into the area.

Progress Being Made on Motorboat Act

The Wildlife Resources Commission is in the process of setting up the machinery for handling the registration of motorboats of more than ten horsepower when the boating safety act goes into effect next January 1. Since the law prohibits the diversion of wildlife funds to boating safety, the Commission will borrow $100,000.00 from the Contingency and Emergency Fund to purchase equipment and employ additional personnel so that numbering certificates may be issued when applications come in. Meanwhile, it is anticipated that wildlife protectors, mainly responsible for enforcing the boating safety act, will be trained in boating safety law and boating safety at the Institute of Government, UNC, Chapel Hill.

Thurman Briggs, Lexington, chairman of the Commission, appointed Robert M. Carr, Wallace, chairman of the Motorboat Committee of the Wildlife Commission. Other members of the three-man committee specified by the act are T. N. Massie, Sylva, and J. A. Bridger, Bladenboro. The committee is required by law to placo special emphasis on the administration and enforcement of the boating safety act.

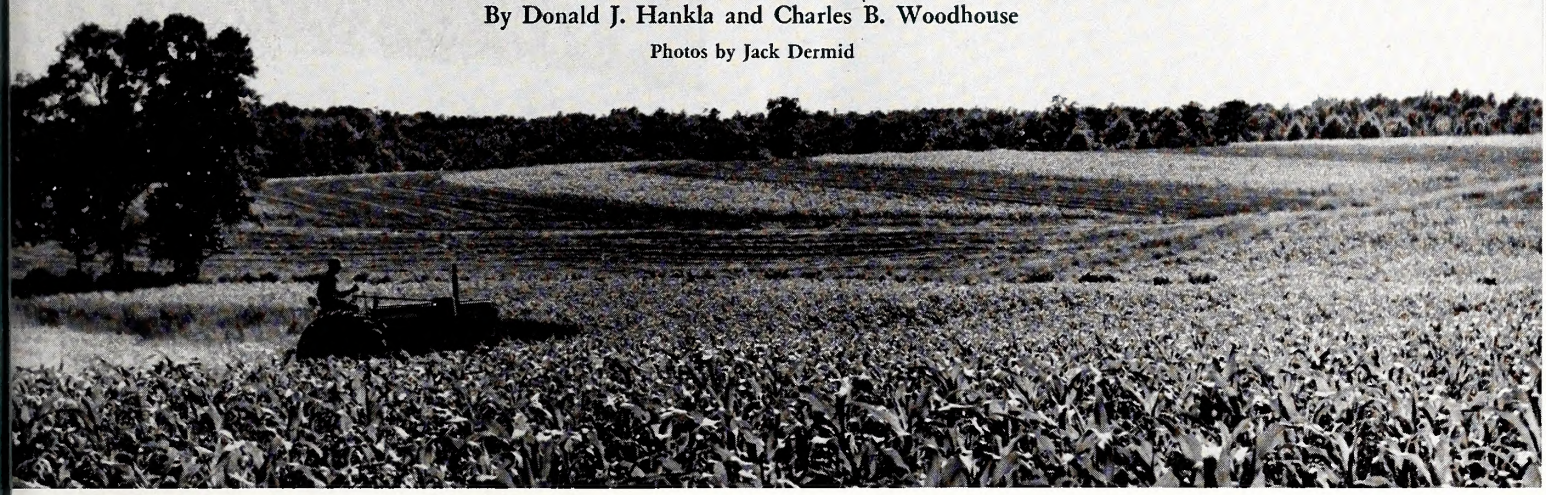
Combination Hunting-Fishing Licenses Due

If you have been fishing on a combination hunting and fishing license you will need a new one August 1. Combination hunting and fishing as well as regular hunting licenses expire July 31 each year. State and county fishing licenses are valid during the calendar year.

The Land ... the Farmer ... and Wildlife

By Donald J. Hankla and Charles B. Woodhouse

Photos by Jack Dermid



Like cattle or corn, wildlife is a product of the land and will benefit from the farm conservation practices outlined in this important article.

CHANGING trends in agriculture and a heavy demand for more quail and rabbits have caused Wildlife Resources Commission game biologists to become more concerned about what might be done to further increase farm game populations. It has long been realized that farm game is a crop or product of the land. It is only natural, therefore, that a solution to the problem of insufficient quail and rabbit populations be sought on farm land where animals make their homes.

Last year biologists began a study of the major farm crops grown in North Carolina in an effort to determine if certain of the more common farm practices might be modified to make them more beneficial to farm game. The results of the study revealed that some farm practices could be made beneficial to game with only minor modifications. It was also found that several conservation farm practices now recommend by the N. C. State College Agricultural Experiment Station and Extension Service and the Soil Conservation Service are beneficial to game and should be more widely used.

Following are some of the more important farm practices and how they effect quail and rabbit production. Also indicated are some suggested modifications designed to benefit farm game.

Donald J. Hankla is leader of the Wildlife Commission's Upland Game Restoration Project, and Charles B. Woodhouse is Game Biologist for District 3.

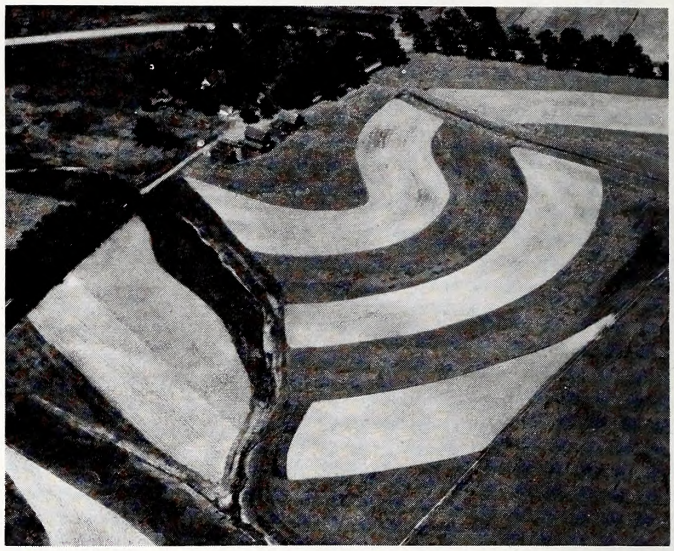
STRIP CROPPING

Strip cropping is a combination of several good farming practices. It employs crop rotation, contour cultivation, cover cropping and other conservation farm practices. Because it provides a diversity of food and cover and an abundance of "edge" where strips of one crop join another it is generally considered to be very beneficial to quail and rabbits.

Agriculturalists recommend that strips of close growing crops of grasses and legumes be alternated with strips of small grain or some intertilled crop such as corn or soybeans. Where these strips join, an ideal summer food and cover combination is formed which favors the rearing of young quail and rabbits.

A further advantage of strip cropping to wildlife is the fact that some kind of cover is in the field all the time. Where strip cropping is not employed there are several weeks during the year when farm game must move to other areas to obtain food and protective cover. Strip cropping is a practice that is adaptable on the majority of farms in North Carolina and should be employed where possible.

Commission biologists, such as Charles Woodhouse (right) are available to advise landowners about farm practices beneficial to wildlife. All farmers, in a sense, are wildlife managers.



Wise land use is beneficial to the farmer as well as to wildlife. Strip cropping on the contour—a recommended soil conservation measure—provides an ideal food and cover combination.

CROP ROTATION

The practice of rotating crops is highly recommended even where strip cropping is not being employed. Crop rotation, in addition to being beneficial in maintaining soil fertility and in controlling erosion, is also beneficial to wildlife. Annual lespedeza which often follows small grain, is a preferred food of quail and furnishes ideal summer cover for rearing both young quail and rabbits. Green manure crops, when planted in rotation, often are a good source of fall and winter food. Fescue provides excellent food and cover for farm game when fall-planted with small grain or following tobacco to provide winter cover for the soil and to control nematodes. Soybeans following small grain provide an excellent source of winter food when the stubble is allowed to remain in the field until the following spring.

The practice of allowing crop fields to remain idle for one or two years is also beneficial to wildlife. The native legumes and weeds which normally follow cropping provide an ideal home for quail and rabbits. Such a field is favored for rearing young because it is open enough at the ground level that the young can run and move about, yet be protected from predators.

HARVEST

The harvesting of crops is a very diversified procedure and varies according to the crop, the locality and the time of year. Generally, quail and rabbits stand to gain from harvest either from grain and seeds that are intentionally left for their use or from the grain and seeds that are lost through mechanical harvesting.

Farmers harvesting soybeans, lespedeza, small grain, milo, and corn have an excellent opportunity to provide wildlife with food by leaving unharvested strips along the edges of fields and in odd corners. Small quantities of food left in such manner are frequently enough to hold a covey of birds or a few rabbits in the vicinity for several weeks.

WIDE ROW PLANTING

A common practice in certain sections of North Carolina is that of planting corn in widely spaced rows and inter-planting soybeans between the rows. After the corn has been harvested in the fall the field is "hogged down." This practice could be of benefit to wildlife if a portion of the field were fenced off from foraging livestock.

With further modification, wide row corn planting can be an excellent wildlife and conservation farm practice. In a recent study it was determined that corn yields could be equally as great, wildlife values considerably improved, and soil fertility maintained and improved by spacing the corn rows

Invading legumes and weeds make fallow fields ideal places for small game to rear their young. Cover is open at ground level to permit easy movement while providing protection overhead.

Wide-row corn planting with alternate rows planted to such crops as soybeans or alfalfa produces habitat attractive to wildlife without reducing corn yields or depleting the soil.

Mowing destroys quail and rabbit nests, but if strips are left unmowed along field edges and in odd corners during May and June, many nests will be saved to yield hunting dividends.

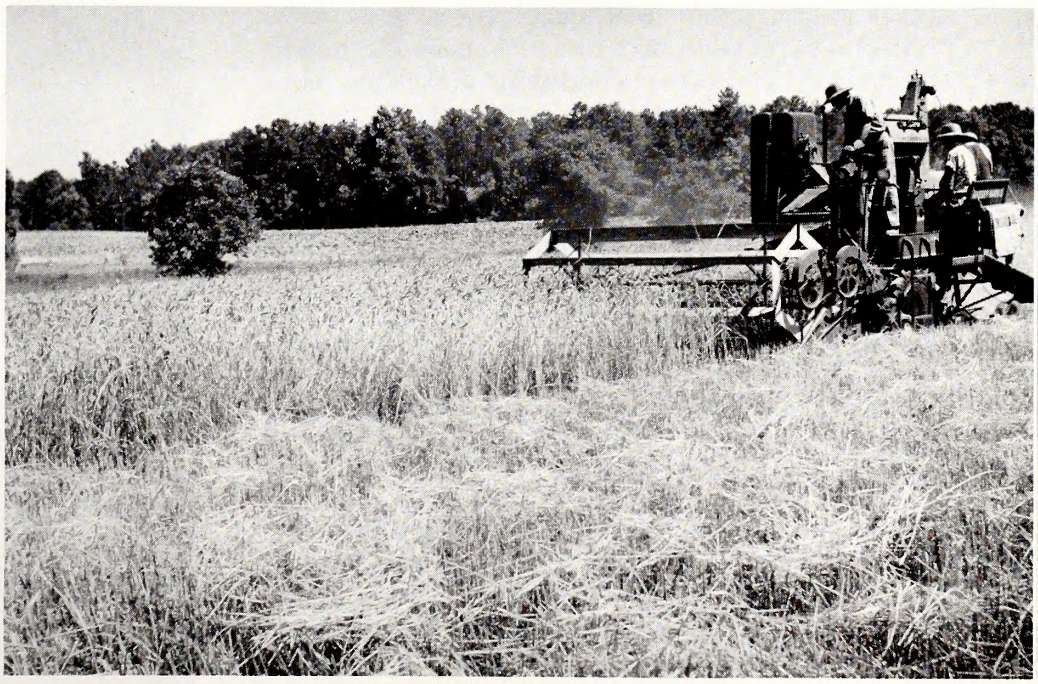
60 inches apart, increasing the seeding rate of corn in the row and inter-seeding between the rows with a green manure crop such as hairy vetch, fescue, Korean lespedeza, red clover, orchard grass, alfalfa, or rye grass. Inter-seeding is performed at the time of the second or third cultivation of the corn. Such a practice provides greatly increased living space for quail, rabbits, and doves, and enables the farmer to make fewer special concessions in order to have these animals on his farm.

PLOWING

Plowing has a great effect on quail and rabbits. One of the most detrimental plowing practices is the turning under in the fall of crops which furnish quail and rabbits with food and then permitting the land to remain bare throughout the winter until spring planting time. Frequently, when a dry fall occurs farmers take opportunity to plow under stubble from harvested crops in order to get a "head start" on spring plowing and planting. This practice not only adversely affects wildlife but contributes to excessive soil erosion and further decreases soil fertility.

To be of greatest benefit to farm game the plowing of stubble of small grain, corn, soybeans, cowpeas, milo, and lespedeza should be delayed until late winter or until early spring—unless some winter cover crop is to be planted. This would permit quail, rabbits, doves and other game birds and animals to utilize the soybean, lespedeza, and waste grain lost through harvesting.

In a study recently completed by the Soil Con-



Grain stubble furnishes good nesting and roosting cover and provides food well into winter. Unless a winter cover crop is to be planted, stubble should not be plowed under until late winter or early spring. Bare fields are of little use to wildlife and are subject to erosion. Unharvested strips of grain along field borders will provide additional food.

No coveys here! Bare field borders—wasted land—are unproductive of wildlife and permit severe losses to soil erosion.

servation Service, it was learned that yields could be increased and soil erosion lessened by following a plow-plant technique; that is, to plow and plant the field to another crop virtually in the same operation.

MOWING

The mowing of alfalfa, clover, fescue, sericea and other crops for hay is a common farm practice which is gaining in intensity each year. Inasmuch as hay fields provide ideal nesting sites for quail and rabbits some effort should be made where possible to show consideration for nesting animals. One such consideration or concession to game might be to delay mowing for a six weeks period sometime between May 1 and July 15. This would allow sufficient time for quail to construct a nest, lay a clutch of eggs and incubate the required 21 days.

If some nests are destroyed by mowing or for other reasons, quail will make renesting attempts until they are successful or until about the middle of summer. If weather conditions make this mowing schedule impractical, it is suggested that occasional strips about 10 feet wide be left unmowed along field edges, in corners of fields, or around rough or rocky places to provide nesting sites.

Another mowing practice which benefits game is to complete the last mowing of the year sufficiently early to allow the hay plants to make several inches of growth before frost. This will provide food and cover for rabbits and quail well into the winter and is an excellent practice from the standpoint of maintenance of the hay planting and the prevention of soil erosion.

FENCE ROW AND DITCH BANK MAINTENANCE

Some of the most important wildlife areas on the farm are the fence rows and ditch banks. They serve as travel lanes that offer protection during feeding and loafing activities, and as nesting places for both quail and rabbits. Frequently the maintenance of such areas consists of burning or clearing with a brush ax in order to prevent the encroachment of weeds, shrubs, and trees on fields. If quail and rabbits are to receive full value of fence rows and ditch banks, maintenance should be confined to the removal of undesirable trees and shrubs, leaving vegetation which furnishes food and cover — such as broomsedge, brambles, and native legumes.

SOD WATERWAYS

Waterways or meadow strips are designed to carry water that runs off crop fields as a result of heavy rains. They are normally seeded to a grass such as fescue or to sericea. Waterways usually follow natural depressions and extend as narrow bands across farm land. Such areas are of especial value to quail and rabbits by furnishing nesting sites as well as food and cover.

It is important that sportsmen as well as farmers realize that quail and rabbits are a crop—a product of the land. These wild animals respond to management much in the same way as domestic animals. Their natural environment is farm land and their requirements are much the same as those of livestock and poultry. When properly fed, protected from their natural enemies, and given suitable living space, farm game animals will produce an abundance of young.

Quail and rabbits will thrive where they are considered as crops of the land and provided with all the essentials of life.

The 1959 Doe Deer Seasons

By Frank B. Barick

FOR the third consecutive year, the Wildlife Resources Commission will schedule short-duration doe seasons for sections where deer have become overly numerous. Increased protection and increased public cooperation in controlling illegal hunting has allowed local deer herds to increase and in some such sections this has resulted in damage to farm crops. The only practical way yet devised for preventing deer damage to farm crops is to reduce the herd by legalized harvest of both sexes.

Biologists claim that deer are no different than quail or rabbits and that where herd size warrants, both sexes should be harvested. In most parts of the state herds are not yet large enough to allow this type of hunting so either-sex or antlerless hunts must be confined to those very limited localities where the herd is large enough.

The 1957 Legislature authorized the Wildlife Resources Commission to schedule "doe" hunts provided that a public hearing be held near the area to be affected and provided furthermore that no either-sex hunts be allowed in the far-western part of the state where most of the hunting is with rifles.

In order to expedite processing of requests for doe hunts, the Commission established the following procedures:

1. Requests for establishment of doe hunts must be filed in writing with the Wildlife Resources Commission, Box 2919, Raleigh, N. C. not later than August 14.
2. Public hearings are to be held in or near the areas where the hunt is desired not later than the week of September 7.
3. Announcement of seasons approved by the Commission will be made not later than the week of September 28.
4. All doe seasons are to be scheduled sometime during the week of December 14.

Hearings for doe seasons on certain wildlife management areas were held during the week of June 29. The above schedule is only for processing requests on private lands outside of management areas where deer have become so numerous as to cause damage to agricultural crops. All those who wish to file such a request should do so not later than August 14.

PROTECTOR OF THE MONTH

The Surry County Wildilfe Protector, Vernon F. Ball, was born in Elkin, North Carolina on November 30, 1924. Mr. Ball is the son of Mrs. J. V. Ball of Leaksville and the late Mr. Ball.

A graduate of Elkin High School, he entered the Navy in 1944 and served two years in Panama as a member of the Shore Patrol. Prior to his appointment as Wildlife Protector of Surry County in July, 1953, Mr. Bell was employed as a salesman. He has attended three Wildlife Protectors' Training Schools, conducted by the Institute of Government in Chapel Hill.

Mr. Ball is married to the former ReElla Miller of Elkin, and they have two children, Stephen and Sharron. The Balls attend the Grassy Creek Methodist Church of Elkin, where Mr. Ball is a member of the Methodist Men's Club and the Official Board of Stewards. He also takes an active part in Boy Scout work and serves as Treasurer for Troop No. 224.

ENFORCEMENT RECORD

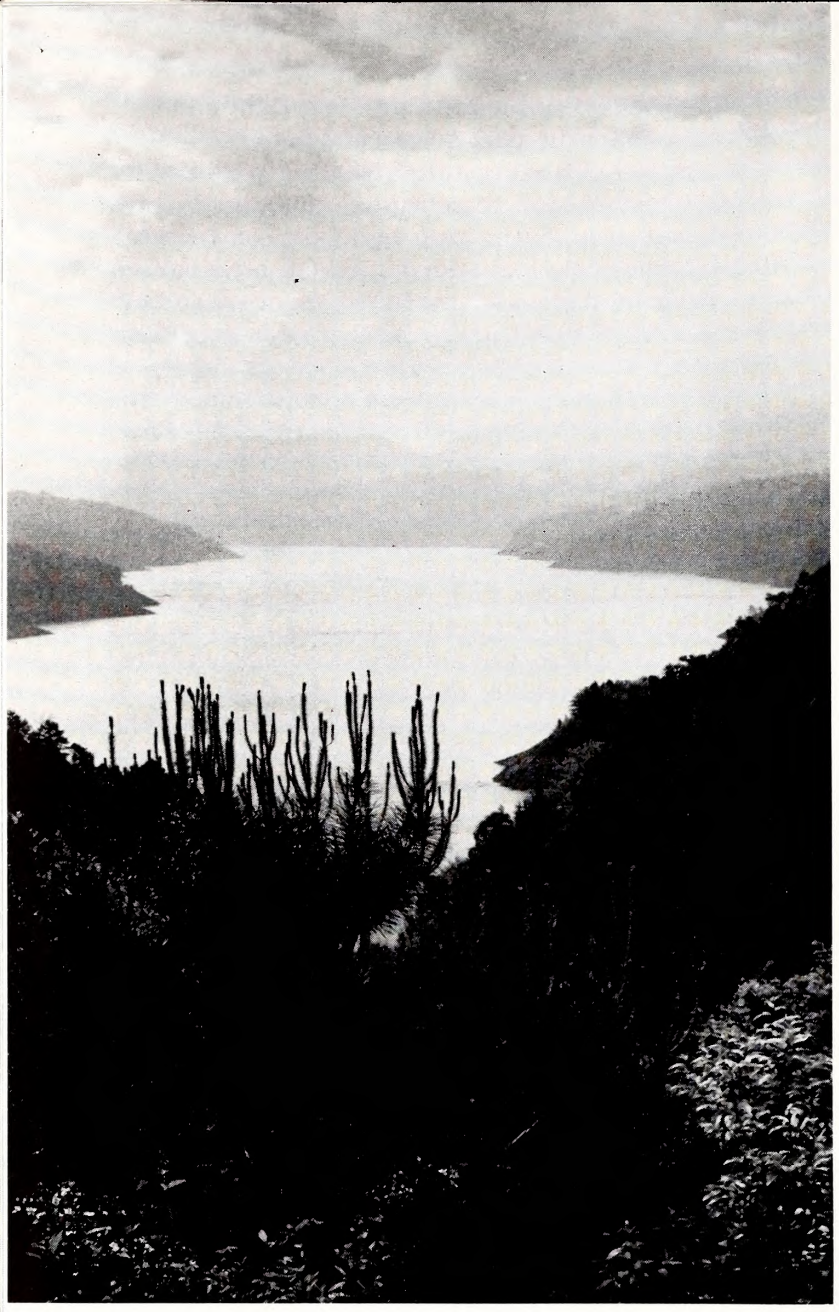
Persons checked	47,618
Total prosecutions	834
Total convictions	810
Total cases not guilty	11
Total cases nol prossed	13
Total fines collected	$3,157.00
Total costs collected	$6,124.15

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Does the Wildlife Resources Commission set the dates and bag limits on waterfowl?

ANSWER: No. All migratory game birds are under federal jurisdiction, and the U. S. Fish and Wildlife Service is the agency that determines the seasons and bag limits and the manner of taking migratory game birds. An annual census on the nesting grounds determines how liberal or how stringent the regulations will be. State wildlife agencies are consulted in setting up the rules.



Spectacular is the Word for Fontana

By Jim Messer
Fishery Investigator

Fontana's fishing attracts thousands of anglers every year—some go home bragging about the spectacular catches of bass in spring and fall while others, who try their luck in mid-summer, often come home empty-handed. For some tips on how you can be among the successful fishermen, read this article on spectacular Fontana.

SPECTACULAR is the word for Fontana. Spectacular water, mountains, crowds, fishing. You may never have been there, but few North Carolinians have failed to hear of this lake which laps the shores of Graham and Swain counties.

The water is spectacular. At high water the lake is 29 miles long, with a shoreline of 248 miles. Drawdowns of ten and twenty feet cause comment in Piedmont North Carolina lakes; it is not uncommon for Fontana to plummet a hundred feet and more. The dam is 480 feet high—when completed in 1945, it was the fourth highest dam in the world. Through the lake flow several currents, resulting in entirely different water characteristics at various levels.

The mountains are spectacular. Located on the western side of the Great Smokies, the lake is far less accessable to most North Carolinians than it is to residents of several other states. All-weather highways approach the lake from three sides, but the twisting turns require the driver's constant attention. Elevation at the top of the dam is 1,727 feet. The gorge in which the lake is located falls steeply to the river bed now many feet below the lake's surface. The slopes are so steep, in fact, that bank fishermen are a rarity—anglers find themselves much more comfortable in a boat than clinging to the side of a cliff.

The crowds are spectacular. More than a million tourists a year are reported at the dam. Fontana Village, a tourist resort with accommodations for 1,200 guests, is located near the dam. There are other places to stay in the area. Most of the visitors, however, are from other states—Graham County leads the state in the sale of non-resident licenses.

The fishing, too, is spectacular. At times near phenomenal catches are reported—spring and fall fishing for largemouth and smallmouth bass produce big fish in big quantities. Equally spectacular is the mid-summer fishing—June through August —when hordes of tourists drown multitudes of "lizards," sometimes with a phenomenal lack of success.

History

Fontana Reservoir is a TVA lake. The Tennessee Valley Authority has developed the Tennessee River system for navigation, flood control and power generation. TVA began operation in the early Thirties, but it was not until the beginning of World War II that Fontana was begun. Construction began in January, 1942, and was completed in January 1945. Power from Fontana contributed to the war effort through such plants as the atomic bomb plant at Oak Ridge.

The Fontana project mushroomed in a valley that boasted few people and even fewer roads. Bounded on the north by the Great Smoky Mountains National Park, even today one side of the valley is a wilderness. A new State highway follows the southern shore of the lake, but except for the former construction camp turned tourist resort, there is no large settlement near the lake.

Access and Accommodations

Fontana may be reached from NC 28 and from US 19 near Bryson City. Several small launching sites are found along the southern shore, but because of the steep slopes down to the water, access is not simple. Docks are few and far between, but the major ones are equipped to serve most needs. A Wildlife Commission access area has been discussed, but development of an area depends on the availability of a suitable site that would serve boaters during the extreme fluctuations of the water level. Boats and motors may be rented at the commercial docks.

Rooms and meals may be obtained at Bryson City, Fontana Village and Robbinsville, as well as at several establishments along US 19 and NC 28. Reservations should be made in advance during the summer months, but during the times when fishing success is high little difficulty will be found in obtaining accommodations.

Physical Features

Although Fontana is considered an impoundment on the Little Tennessee River, it is also fed generously by the Tuckaseigee and Nantahala Rivers, as well as countless mountain brooks. It covers some 10,670 acres when full, which makes it a good sized reservoir—but not the largest in North Carolina. Its storage capacity of 1,445,000 acre feet of water is tremendous, however. The setting is rugged yet serenely beautiful. The incoming streams keep Fontana's waters cool the year 'round at depths below 25 feet and this is usually where the fish are in the summer. The river currents dip and dive through Fontana—upsetting the stratification of the reservoir and making fish-location prediction a little tricky. The surface waters are almost always clear because of the forested watershed, but the turbid Little Tennessee often runs the full length of Fontana at 30 or 40 feet deep and comes out muddy into Cheoah below. To visualize the bottom of the reservoir simply look up the rocky slopes often exposed by drawdowns; cover this with anywhere from two inches to several feet of silt and that's it.

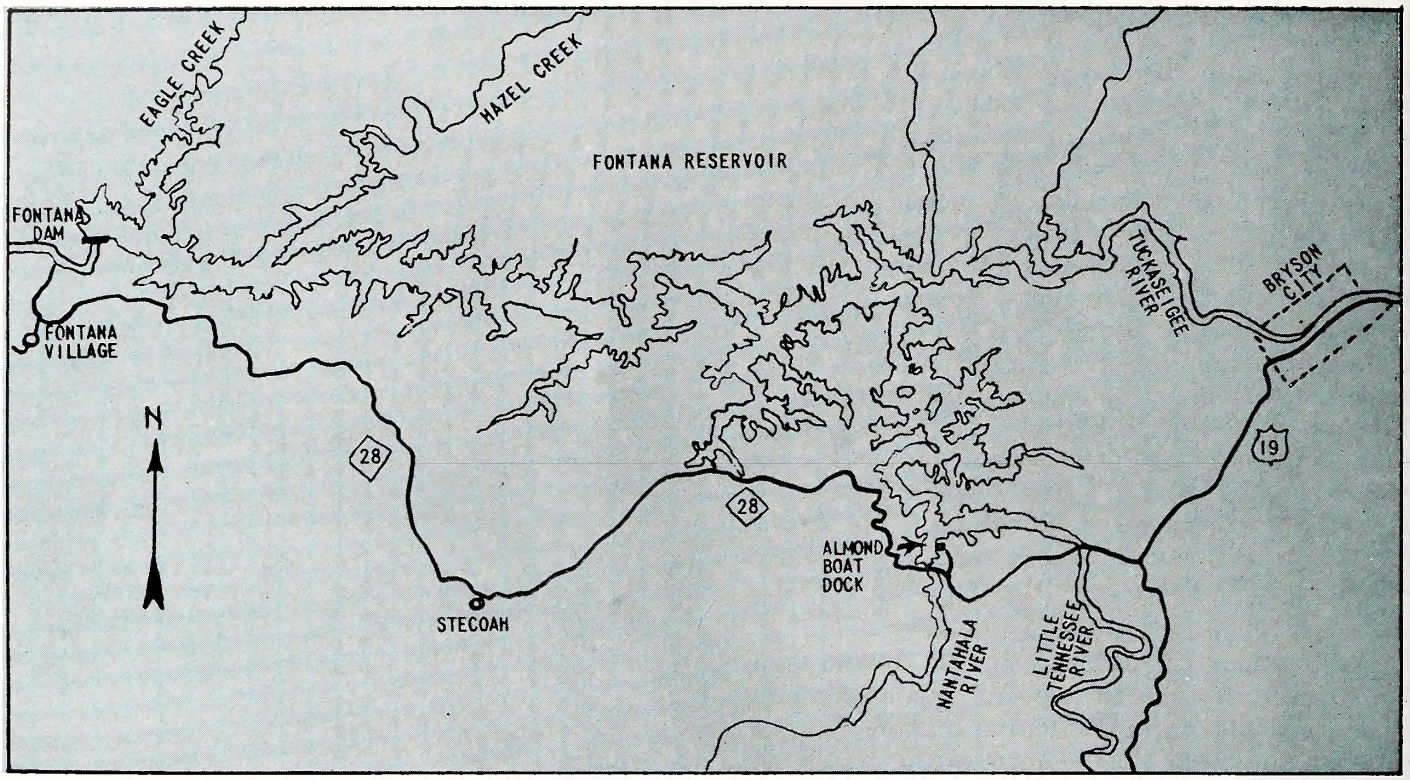
Photos by Jim Lee

The Fontana Boat Dock, located near Fontana Village, is one of the fishing centers on the lake. Available here are boats and motors, bait, tackle, snacks, and North Carolina licenses.

Fish Population

Select ten fishermen at random who have fished Fontana the last year or two and ask them about their luck. Your answers will range from "lousy" to "fabulous" with no two anglers agreeing. A point most of them will concede, however, is that the fish are there. And indeed they are. Species taken regularly by anglers include largemouth bass, smallmouth bass, crappies, bluegills, rock bass, and recently walleyes and white bass. Non-game fish present include flathead catfish, channel catfish, gizzard shad, redhorse suckers, and milkytail shiners. All these fish are well established and are here to stay. Some are a bit hard to find and catch at times!

The Almond Boat Dock, at the upper end of the lake is another establishment catering to the fisherman. Boat launching is available for the fisherman who wants to bring his own boat.



If you would check a hundred black bass at random taken over the season from Fontana roughly 65 would be largemouth and 35 would be smallmouth. When you make a cast toward a rocky point you never know which will latch on. During the early spring, more smallmouth are taken because of their cool water preference. A small gold spinner with a tiny wisp of yellow bucktail tied on its treble hook is often good for early fishing. If the bass are cruising very near the bank, a medium size popping bug may get action. Probably more bass succumb to live bait in Fontana than are snaffled by artificials. "Lizards"—which are really salamanders—will take bass when other lures fail. A medium-weight spinner on a spin-cast outfit that tosses a carefully-hooked salamander toward the bank and works him slowly back to the boat, is hard to beat. Trolling, although not popular at Fontana, can be productive during mid-season. Many of the lunker smallmouth and largemouth fall for a big noisy, surface lure fished in the dead of a midsummer's night. By far the best bass fishing is enjoyed during the spring and late fall.

Fishermen returning home after a day on the lake cut a swath through the reflected light of the evening sky over Fontana.

Crappies

The crappies usually move into shallow, stumpy bays to spawn during April and May. Minnows fished four or five feet deep produce well, but a tiny white bucktail jig or flashy miniature plug will take them too. Occasionally your peaceful crappie fishing will be interrupted by a head-shaking smallmouth that gobbled a crappie bait. During the summer it's a deep water proposition to take crappies. If you find deeply submerged brush on stumps you may be in business.

Bluegills

A relatively "forgotten" fish in Fontana, the bluegill is quite abundant. A light fly rod and a tiny popping bug can make a July evening very interesting. Often the debris-filled coves with a trickle of water flowing in have bluegills that hit well. Although a light leader is best, the likelihood of a hungry bass makes a four-pound test tipped about minimum. A can of worms under the boat

seat is good insurance against a fishless summer trip.

White Bass

A newcomer on the Fontana scene but old stuff to the Tennessee fisherman, the white bass or "striper," is furnishing some fine sport now. The black bass angler has to revise his techniques a little for this silver fighter but the tackle remains about the same. Given time the white bass will make big spawning runs up the tributaries of the reservoir; this is the time to harvest them. A small, light-colored jig fished near the bottom works wonders. As the fish fan out into open water after their egg-laying, they soon form big schools roaming the surface hunting the gizzard shad. When you happen on to a feeding bunch of white bass, action can be fast and furious—for a while. They will hit almost anything that resembles the small shad and scrap right to the net. Two-pounders are good ones in Fontana now.

Walleyes

Another fairly recent introduction, the walleye is now contributing some fishing in Fontana. Whether this big cousin of the yellow perch will produce the type of fabulous fishing he has in some of the other TVA reservoirs remains to be seen. He can be a moody character; sometimes hitting exclusively at night; feeding only on the roughest, rawest day; or gently picking off mayflies like trout. Although a live minnow about four inches long fished deep off a rocky point usually is best for old glasseye, the same "spring lizard" you work the bass with, is often inhaled by the walleye. It will take a while for Fontana anglers to get used to the walleye and vice versa, but we hope that ten-pounders are in the near future.

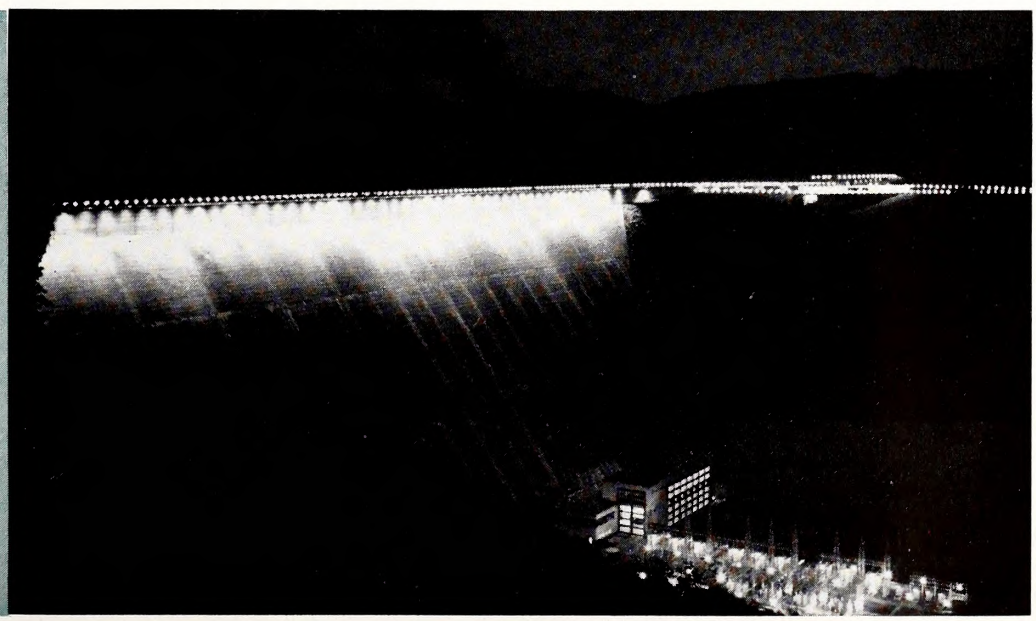
Trout

Now Fontana is not a trout lake but to pass them up wouldn't be right. A few of the streams

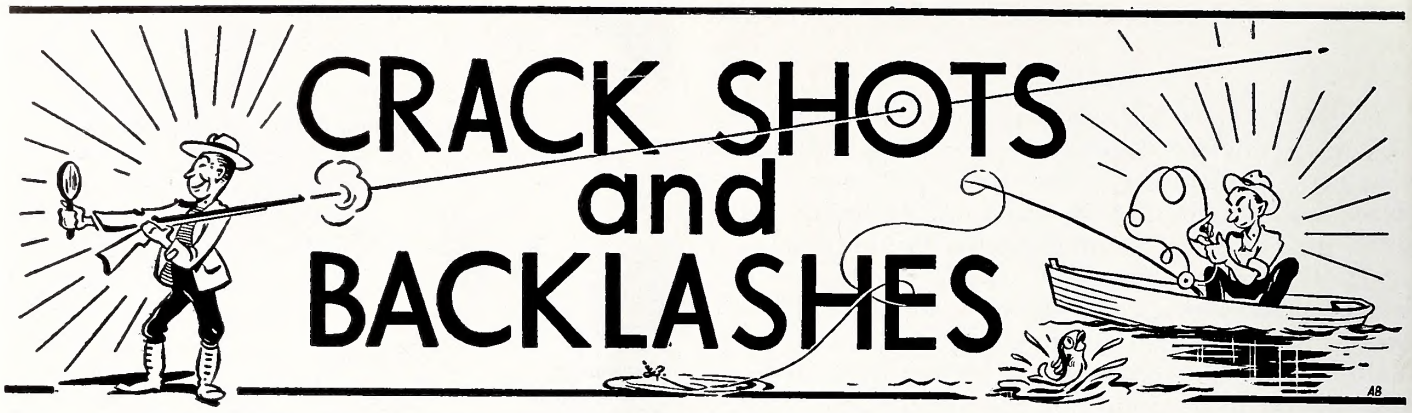
entering the reservoir from the north empty some nice trout into the cool coves. True, they don't venture too far out into the open water, but rainbows can add spice to an already well-sprinkled cake. A bright spinner, tiny spoon or gob of worms fished carefully and quietly should produce a shimmering trout at the mouth of the streams.

Now all this may seem like an overly rosy picture—especially to those who have drawn blanks from Fontana. But the fact remains; the critters are there. Remember that the food supply in the form of millions of gizzard shad and shiners make big but often well satisfied fish.

Fontana is just like every other fishing spot; "you've got to catch 'em biten' before you can catch 'em!"



Fontana Dam is one of the main attractions for visitors to the area. Lighted at night by floodlights, the dam can be viewed from overlooks on both sides of the deep valley. A visitor's center on one side has information and maps of the lake. Below the dam is the power house, approached by a road which follows the shore of narrow Lake Cheoah.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

A call to the duck hunter to "have enough faith in the future of the sport to contribute his $3 for a duck stamp even though the hunting prospects for this fall look pretty grim," was made recently by D. H. Janzen, Director of the Bureau of Sport Fisheries and Wildlife, Fish and Wildlife Service.

Director Janzen's appeal was made at the annual meeting of the Outdoor Writers Association of America at Hot Springs, Arkansas.

He explained explicitly the probable plight of the waterfowl resource. A severe drought in the duck production areas of Canada and the two Dakotas has dried up 50 to 80 percent of the potholes around which the millions of ducks gather annually to nest and hatch their young. Unless something entirely unforeseen happens, that condition "is likely to force us to curtail the hunting season this fall—we will have no choice but to recommend severe restrictions on waterfowl hunting."

He then declared that the duck hunter should consider "this $3 investment as an insurance payment against the permanent retiring of his duck hunting equipment and his dreams of future duck hunting trips for himself and for those who come after him." Janzen asked the Outdoor Writers to point out that thought to their readers.

During the course of his talk, Janzen indicated that not only was the drought taking a terrific toll in the 1959 crop of young birds but that it could also contribute to the loss of a race which the Bureau of Sport Fisheries and Wildlife is making against time in the acquisition of habitat for duck wintering and nesting. He pointed out that for years it had been necessary to utilize part of the duck stamp funds for maintenance and development but that legislation recommended by the Secretary of the Interior corrected that situation. This legislation provided for

Male ring-necked ducks.

a $3 duck stamp (instead of the $2 stamp) but specified that all of the money except that required for printing and handling the stamps would be used for selection and acquisition of waterfowl habitat. It is anticipated that congressional appropriations would have to take care of the operations previously paid for by duck stamp funds. The $3 duck stamp became effective July 1 of this year and the earmarking becomes effective July 1, 1960, when the funds are made available.

Acquisition planning had been based upon the expectation of having six or seven million dollars available annually through the $3 duck stamp. A backlog of projects has already been approved by the Migratory Bird Conservation Commission. Options already obtained are enough to obligate all of the available funds for the coming fiscal year.

Thus any decrease in the sale of the duck stamp will jeopardize the accelerated acquisition plans. Such delay will mean that more habitat will be otherwise utilized and what remains will be harder to get.

Director Janzen explained how priorities were being made in the selection of areas for purchase. A master acquisition plan, he said, is being developed cooperatively by the four flyway councils—on which the states are represented—and the Bureau of Sport Fisheries and Wildlife. He also explained that some oppose the acquisition program because it means taking lands off the tax rolls, but he added that in many instances the county share of refuge receipts amounts to more than the revenue lost.

Fire Ant Propaganda

The U. S. Department of Agriculture continues to issue misleading propaganda in support of its fire ant control program in the South, the National Wildlife Federation charges.

The Agricultural Reserve Service is giving wide distribution to a revised (March, 1959) version of "Facts About the Imported Fire Ant Program." This publication, like a movie entitled "Fire Ant on Trial" also being widely distributed by the Department of Agricul-

ture, sells the control program by distortions, half-truths and omissions, the National Wildlife Federation reports.

"Imported fire ants have been known to damage many crops by attacking the roots, stems, seeds or tender shoots. These crops include corn, peanuts, beans, Irish potatoes, sweet-potatoes, cabbage, collards, okra, squash, soybeans, tomatoes, cauliflower, watermelons and eggplants," the U.S.D.A. publication says. "Imported fire ants may also attack the young of animals and birds—wild and domestic. They will enter pipped eggs of poultry and ground-nesting birds and attack the young as they emerge from the shell."

These statements ignore the fact that the *primary* foods of fire ants are other insects, including such harmful species as cotton boll weevils. And, while fire ants may attack a few crops under unusual conditions, research personnel of Alabama Polytechnic Institute at Auburn, Ala., have grown without damage many of those crops listed on fire ant mounds.

Other implications in the publications unduly emphasize dangers to humans from fire ant bites and possibilities of the insect spreading to northern and western regions of the United States.

On the other hand, the publication completely ignores known widespread damage to fish and wildlife resulting from chemicals, especially when applied from airplanes.

Tribute To Soil Conservation

The Nation's first soil conservation stamp will be released by the Post Office Department August 26 at Rapid City, South Dakota, at the annual meeting of the Soil Conservation Society of America. It will go on sale at post offices throughout the country the following day.

The 4-cent postage stamp, issued in the commemorative series, was developed in co-operation with the U. S. Department of Agriculture. It will be printed in three colors, yellow, green and blue.

Issuance of the stamp, officials of the Department of Agriculture said, is a tribute to farmers and ranchers, their local soil conservation districts, and to the professional conservationists and other agricultural workers who have helped make the United States a world leader in soil conservation.

Observances are planned in most of the Nation's more than 2,800 soil conservation districts in cooperation with agricultural, conservation, industrial and civic groups.

The stamp, designed by Walter Hortens, New York artist, portrays a modern conservation farm showing contour stripcropping, terracing, tree planting, pasture improvement and a farm pond.

Bream As Live Bait?

DEAR SIRS: Would you please answer (or rather settle) a question for us? Is it now legal to use small bream for live bait? Last week I was fishing in Creedmore Lake and the two men running the lake said it was. Your protector came by and checked my license and I never thought to ask him. If those two men are right I would like to have it verified before attempting to use small bream as bait. I mentioned it to some men in Chapel Hill and they said that it was definitely illegal.

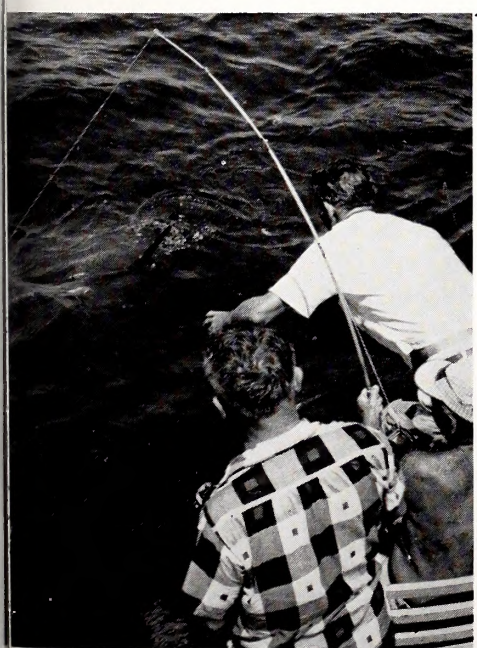
Who is correct? Thanks very much and I enjoy your magazine very much. Yours sincerely, H. A. YANDLE, BOX 539, CHAPEL HILL.

DEAR MR. YANDLE: In reply to your inquiry of June 16, concerning the use of small bluegills as live bait, this is to advise that the 1959 Fishing Regulations do not prohibit the use of live game fish as bait. However, the possession of black bass of less than 10 inches and walleyes of less than 15 inches is prohibited and these could not be used as bait. This means that the various pan fish (none of which has a size limit) can be used as bait provided that they are taken in accordance with our current regulations and do not violate creel limits.

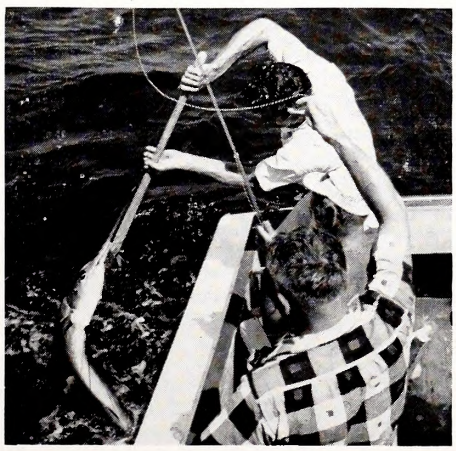
You will note that paragraph "c" under Regulation 2-59, states that it shall be unlawful to destroy unnecessarily any game fish. This could be interpreted to mean that using game fish as bait is unnecessary destruction.

In summary then, there is no prohibition of using game fish as bait if the other regulations are adhered to. Very truly yours, DUANE F. RAVER, JR., FEDERAL AID COORDINATOR, FISH DIVISION.

Exciting Moment



Many deep-sea trophies are lost after they have been fought to the sides of the boat, and when the fish involved is a sailfish, a real prize is at stake. In this series of pictures, photographer Frank Beatty of Raleigh caught the drama of a successful landing.



The lucky angler is Raymond Streb of Raleigh. Helping to boat the fish is companion Howard Brege (checkered shirt) of Raleigh and Captain Bert Davis, skipper of THE KIDD, whose home port is Harkers Island. A feather lure with a strip of Spanish mackerel was the bait.

Robert B. Hazel and Ben H. James

New Protection Division Chief

Bob Hazel, former assistant chief of the Wildlife Protection Division, was promoted to chief of the enforcement division on July 1, following the transfer of former chief Ben H. James to the position of big game supervisor for the eastern North Carolina refuges.

James, who had served as the protection division chief since November 1, 1956, requested that he be transferred to the position that he held for several years before coming to the enforcement job.

Hazel, who has served as assistant chief since July 1956, was project leader for the small game restoration program before transferring to law enforcement activities. As assistant chief Hazel has also piloted the Wildlife Commission's patrol plane.

Donald E. Curtis

Don Curtis, previously wildlife protection supervisor in District 8, has been appointed assistant chief to replace Hazel.

A Secret Place To Fish

A handful of freckles on a turned-up nose
Patched-up jeans and muddy toes,
An old cane pole and battered-up can
Dad's old straw hat and a baked-on tan,
A faithful pup with no pedigree
A vacant space where a tooth should be,
A secret place to lie and dream
A fishing hole on a lazy stream,
The birds, the frogs, the bugs and snakes,
And grub like only Mother makes,
A special time when Dad can come
To talk and fish till day is done,
It's such as these that leap the span
From a freckle-nose kid to a worthwhile man.

—Paul T. Gilbert

Eating Sand?

DEAR SIRS: My dog has the bad habit of eating sand. Do you have any suggestions? LUCRETIA PLYMPH, WAKE FOREST.

DEAR LUCRETIA: Just a word of warning: don't let the dog get near any sacks of cement.

Chipmunk Takes Fly

DEAR SIRS: I recently had a very interesting experience while fishing for trout on South Toe River. Since it is so unusual, I thought you might be interested in it.

Mr. J. W. Autry of Burnsville was fishing for trout in the old power dam on the river. He was using a blue quill dry fly. Stopping momentarily in his fishing, he had taken his fly from the water and it was lying on the ground nearby. A chipmunk ran by, saw the fly on the ground, picked it up in his mouth and started off. Needless to say, the chipmunk was soundly hooked in the lip. A much surprised Mr. Autry stopped the chipmunk's run and reported one of the strangest catches the Mt. Mitchell area has ever seen. Just how Bud Ratledge will show this one in his yearly reports is very interesting to speculate upon. Within a few minutes the chipmunk was released and he really scampered back to the laurels. THOMAS W. REESE, HICKORY.

"They say these woods are full of 'em."

DEAR SIR: Have just finished reading your June issue of Wildlife, and enjoyed it very much. There was one article that I was very interested in, about the power companies on the Yadkin River, and how they keep enough water released for the fish to spawn. Now you may believe that but I do not. Don't take my word just go to Lake Tillery some Saturday morning about 5:00 o'clock and see for yourself.

There is one question I would like to ask, do these companies have a right to keep people from fishing around or near the base of the dam. If not we bow fishers sure wish you would enlighten them. Thanks. ARCHERS OF ASHEBORO by BOB HOWELL.

The Carolina Power and Light Company, which operates Lake Tillery and the dam, bought a special thermometer to indicate water temperatures in the reservoir. When water in the reservoir reaches sixty-four degrees the company holds water levels to a two-foot fluctuation for a period of about three weeks. Under the Federal Power Commission license, the company is *required* to keep people away from an area above and below the dam for safety reasons. Further, under the provisions of the license and with the agreement of conservation authorities, with all of the gates closed enough water leaks through to permit enough flow below the dam to permit stream fish to spawn. On the other hand, a heavy

While vacationing in the mountains this summer, plan to visit one of the Commission's trout hatcheries or rearing stations. Visitors are welcome between 8 and 4.

surge of water could be allowed to flow through the gates for a few hours without lowering more than the agreed two-foot fluctuation. The agreement to hold water levels as constant as possible is purely voluntary on the part of the Carolina Power and Light Company.

Farm Pond Liability

DEAR SIRS: Just a few lines to let you know how much I enjoy Wildlife In North Carolina. I consider it the biggest value on the market today.

Just got the June issue and was really staggered to learn there are approximately 40,000 fish ponds in North Carolina, which bring up again the reason for this letter. I have a small farm which I'm converting into a bird sanctuary. I have fenced in the front part joining a highway (just paved) but I can't afford to fence the whole place (10 acres).

About one-fourth of a mile from the highway there is a valley that lends itself beautifully to a fish pond which I want very much. Here's my problem, also the problem of a lot of my friends who also want to build fish ponds and some have already built them. We are bothered considerably by trespassers. What we would like to know is would a property owner be liable to a lawsuit in case a trespasser gets drowned. We had a sad incident near here this week. I am given to understand a property owner is protected by law in the State of Georgia but not in South Carolina. Is there anything on the statute books of North Carolina covering this? You could set a lot of minds at rest if you would give the above information in "Crackshots and Backlashes." Thanking you for past favors. CLYDE T. LEONARD, THOMASVILLE.

We wish it were possible to give a clear, simple answer to this question. A phone call to Mr. Harry McGalliard at the Attorney General's office brought forth this suggestion: employ a private attorney who can familiarize himself with all the circumstances involving the situation, and who would then be in a position to give legal advice.

Situations such as this involve both written and common law, and the legal aspects involved are extremely complex. One example Mr. McGalliard mentioned was this: suppose a person had a swimming pool in his back yard. A child strayed into the yard, fell into the pool and drowned. Who would be responsible under the law? The child's parents? The owner of the pool? The child could be said to have been trespassing; but the owner of the pool could be said to have, by constructing such a pool, created a hazard.

Mr. Leonard has brought up a question that every pond owner should consider with deep thought. We wish we could answer the question. We can only further raise it.

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Wildlife

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TEN CENTS

in north carolina

Photo By Jack Dermid

PLAYING POSSUM

The opossum has no monopoly on playing possum. Many other wild creatures —such as the screech owls above—can feign death with remarkable realism. These screech owls, downy young and adult, were photographed slumped down in their nest in the bottom of a squirrel box. Both kept their eyes tightly closed and remained motionless even when picked up or placed on their backs. After awhile, however, the adult came to life with a flurry of wings, but junior refused to show an eye regardless of the photographer's persuasion.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

THURMAN BRIGGS, *Chm.* ..... Lexington
ROBERT M. CARR, *V. Chm.* ..... Wallace
T. N. MASSIE, *Sec'y* ..... Sylva
G. E. BEAL ..... Red Oak
J. A. BRIDGER ..... Bladenboro
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COVER

If there is one bird in North Carolina that everyone recognizes, it is the crow, a noisy and mischievous clown that is endowed with rare intelligence and cunning. To the farmer, he is a black rascal that grows fat on sprouting corn and ripe pecans. Although his depredations are sometimes serious, the crow is not always a culprit, for he consumes great quantities of grubs, cutworms, and other agricultural pests.

To the hunter, the crow provides unlimited off-season sport. It requires considerable skill with a crow call and a knowledge of the crow language—which is a science in itself—to lure him consistently within shotgun range. Our cover was painted by John W. Taylor, an artist who featured in a story on page 18.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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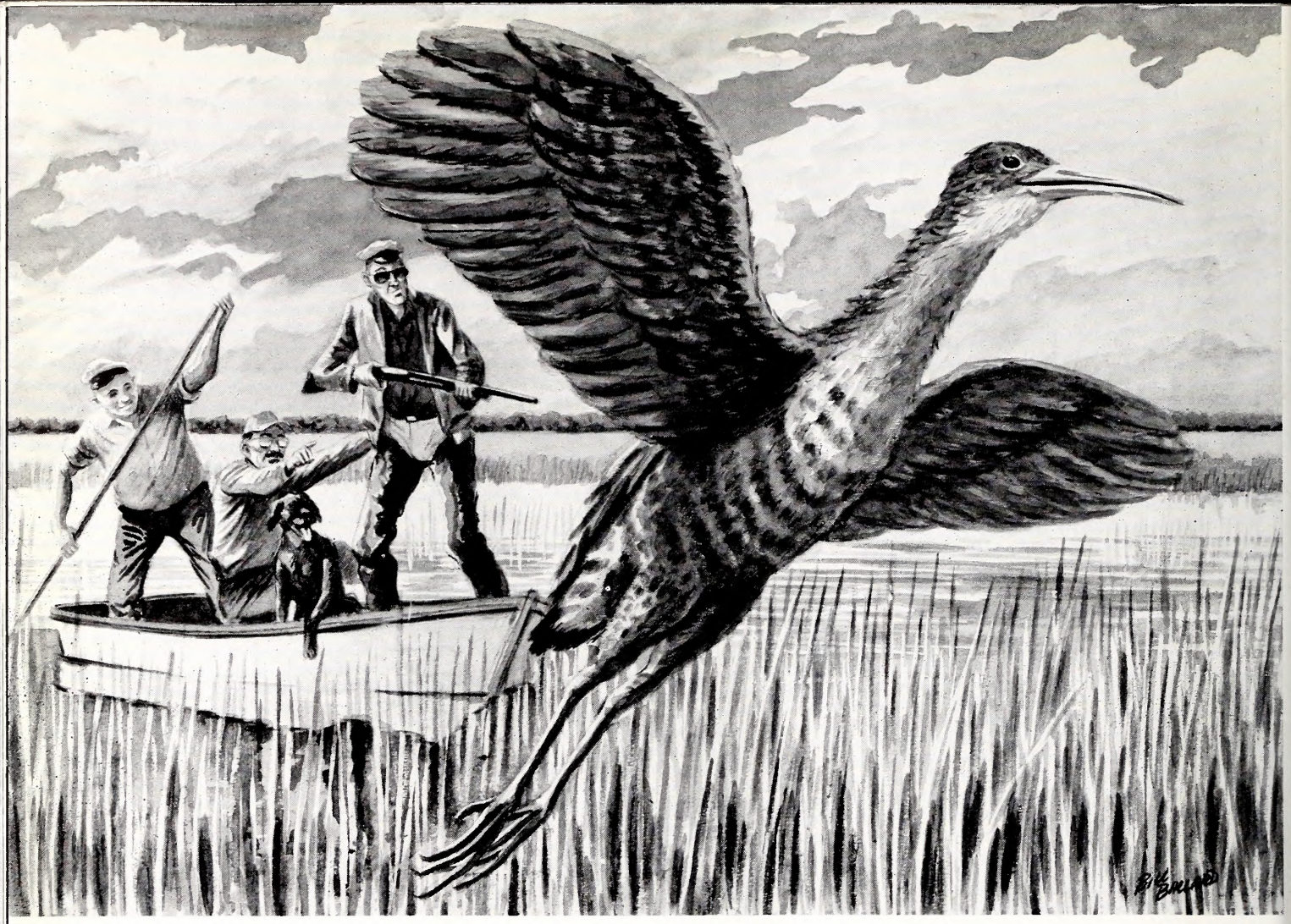


Mr. Sneaky

By Phil Ellis
News Director, Radio Station WPTF, Raleigh
Illustrations by Bill Ballard

HERBERT G. Deignan, Associate Curator, Birds, U. S. National Museum, says, "Rails are for the most part shy and seldom seen, although many are well known from their loud, harsh calls from the swamp vegetation."

Clyde Chadwick, short-order cook, stone crab catcher, and man-about-the-marsh in the vicinity of Shallotte in Brunswick County, has a better description. Says Clyde, "These little so-and-so's are sneaky."

The rail, or marsh hen, being any one of a great number of small-to-medium-sized marsh birds united in the family "Rallidae", potentially can provide some of the most productive shooting of any bird or other animal in the southeast. Because marsh hens (as they are locally known) are indeed, as Clyde Chadwick says, "sneaky", and because in order to shoot them one must take advantage of exceptional tidal conditions and prepare to fight salt-marsh mosquitoes and other natural obstacles, they are undoubtably the least-exploited game bird species in the Old North State. However, to one who is willing to make the sacrifice of time and physical effort, they provide a shooting experience which is unique.

After many years of threatening, we finally came to the point of arranging a marsh-hen hunt during the new moon tide in the middle of October. Because some of the most extensive marshes in coastal North Carolina are located in the vicinity of Shallotte Point, we chose that area for the hunt. John Garner, who operates the Anchor Hotel and provides fishing facilities in the popular section, arranged for Clyde to be our guide. The remainder of our party consisted of Harry Cornell, his incomparable Labrador retriever, King, and myself. Harry went along as navigator and dog-handler. Clyde poled the boat, and I carried the shotgun.

The favorite method of hunting marsh hens has traditionally been to wait until the tide is high

enough to almost cover the marsh grass that grows in profusion along the North Carolina coast. It then becomes a simple matter to pole a shallow-draft boat over the grass with the idea of flushing the birds which have been forced out of their normal hiding places by the high tidal water.

On our day, the only other hunter at Shallotte pursued that technique. We never heard how he fared. Clyde, a life-long observer of marsh hen habits, had a different idea. He knew of a group of small islets near Gause Landing, some three miles down the Intra-coastal Waterway from Shallotte Point. His experience over the years had told him that when exceptionally high, or "rail" tides occur, the birds congregate in the heavy cover of these islets to await the ebbing of these tides so they can return to their normal haunts. On his advice then, we approached the islets in succession and beached the boat—with the idea that King and I would go ashore and tramp over the living room-sized landspits, hoping to scare up birds. The results were fabulous.

On each islet from one to seven birds would be flushed. But again, as Clyde said, marsh hens are "sneaky". They would wait, frequently, until we had passed by their hiding place and rise behind our backs. A yell from Harry or Clyde in the boat would bring us around to fire at the flying birds.

The marsh hen is a small bird, approximately the size of a quail. It has less breast than quail, but more leg. It has the unique facility of being able to swim, dive, run and fly. When it flies, it rises to an altitude of approximately three feet and takes off on an erratic flight for about fifty yards. Then the bird is likely to turn and fly in a circle around the shooter, hoping to elude the second shot—assuming it is capable of getting by the first.

The natural tendency of the person who has never shot a marsh hen before is to underestimate the speed of the bird and shoot behind it. The normal wing shooter is accustomed to shooting at quail, pheasants or grouse—which fly upward. Shooting at a marsh hen gives you the impression of firing at a rabbit running three feet off the ground at a speed about twice that of a normal rabbit. Furthermore, it is about one-fourth the size of a rabbit.

After you learn your catechism, you'll begin to drops birds . . . but until you do, you'll find yourself frustrated and wondering if you have lost your shooting eye or if your trusty shotgun has gone completely to pot.

After working over about eight islets and expending an embarrassing amount of ammunition, we bagged our limit of fifteen birds. King was superb in his tracking of running marsh hens and on occasion took a dim view of our failure to trust his ever-faithful nose. Furthermore, he was not at all sure, since it was his first whack at retrieving birds in salt water, that he liked the idea of dipping up a

1959 Clapper Rail Season

September 5 - November 13 from
½ hour before sunrise to sunset
No hunting on Sundays
Bag limits: 15 daily, 30 in possession

pint-sized bird with a mouthful of brine, but eventually he apparently realized that he was getting more retrieving experience in that two hours than he would normally get in a whole year of working on ducks and geese. King had a great time, the salt water notwithstanding.

Clyde pointed out an interesting phenomenon. During the first hour of hunting, which was on the rising tide, the birds flushed much more easily than they did during the second hour, on the falling tide. Without pretending to know anything about the psychology of the marsh hen, we figured that the birds were doing some thinking. When the water was rising far above its normal height, the birds must have felt so disturbed that they were inclined to panic. As a slack-water time came, the panic seemed to ease somewhat. Then as the tide began to fall, ever so slowly, the birds apparently realized that all they had to do was wait and their problems would be solved. So, on falling tide they sat stubbornly in their island brush cover, allowing

"It was like shooting a rabbit running three feet off the ground and about twice as fast."

"King and I splashed across to the next islet."

King and me to move very close to them before flying.

It seemed prophetic that the fourteenth bird was shot at long range and dropped into the water at the edge of the waterway almost simultaneously with the flushing of another bird which flew to another islet a few yards away. Clyde and Harry took the boat to retrieve number fourteen, while King and I splashed our way across the islet where the other bird had flown. In less than two minutes King had flushed the marsh hen. I dropped it with a single shot and King brought it to me. I put it in my coat, looked at my watch, and saw it was exactly the hour we had previously set as the time for the hunt to end.

North Carolina coastal natives, almost to a man, say that for table fare there is nothing in the bird line that surpasses the marsh hen. Many do not hunt for them. They, like sportsmen from all along the seaboard, hesitate because of the natural difficulties involved. But when a friend comes in with a half-dozen marsh hens to offer for the table, they are delighted to accept them.

Best Rail Tides in September

Date	High Tide*	Height
Sept. 5 (Sat.)	9:14 a.m.	5.0 ft.
Sept. 7 (Mon.)	10:57 a.m.	5.1 ft.
Sept. 8 (Tue.)	11:56 a.m.	5.0 ft.
Sept. 12 (Sat.)	4:13 p.m.	5.1 ft.
Sept. 14 (Mon.)	6:03 p.m.	5.2 ft.
Sept. 17 (Thur.)	7:50 a.m.	5.0 ft.
Sept. 18 (Fri.)	8:31 a.m.	5.0 ft.

*Time given is for Southport. For Beaufort-Morehead City, add 13 minutes.

There are normally only three periods during the fall season when it is possible to hunt marsh hens with any degree of success. In September, the moon usually is either new or full at the time when it is closest to the earth in its monthly orbit. This time is known as perigee. When perigee and new or full moon occur simultaneously, assuming there are no unusual wind effects, tides will rise to one to two feet above their normal high-water mark. This is known as a "rail tide". The September rail tide will normally occur on only one or two days during the month and rail tide will usually be a morning tide. In October, there will be about three days when the same set of circumstances occur. October rail tides should be somewhat higher than those in September. In November, the highest tides are likely to be as good or better than the October tides, and will usually be of about three days duration.

The U. S. Fish and Wildlife Service sets the opening of the season for marsh hens at a few days before the high tides in September. The season is closed a few days after the highest tides in November. It is therefore possible, if you hunt every tide that is satisfactory, to successfully hunt them for about eight days during the entire season.

There are those hardy souls who, with shotgun and waders, will walk through the marshes during low tide at any time during the season and kick birds up for shooting. It is sometimes a productive technique, but is recommended only for those with plenty of physical stamina. Wading through a mucky marsh, fighting oyster shells and slapping salt-marsh mosquitoes, all the time looking for those sneaky birds to rise and fly, is considerably more exhausting than strolling through the fields and woods waiting for your favorite pointer or setter to locate a covey of quail.

In spite of the difficulties, however, and in spite of the limited time in which you have to hunt marsh hens during rail tide situations, it is a rare individual who does not get close to his limit of fifteen birds during his outing. To the novice, it is an experience that will not soon be forgotten. And rare indeed is the man who finishes his first successful marsh hen hunt who doesn't vow to go again, and soon.

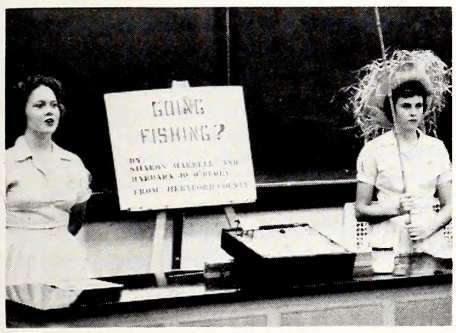
A few words of advice. Wear waders. Use number 8 shot. Carry along a thermos of cold water (two hours of plodding over coastal islets with the sea breeze blowing and the sun beating down can create a thirst the likes of which you have never experienced before). If possible, take a retriever. Besides saving yourself a lot of time in getting the birds back to your game pocket, you will, as always, thrill at the sight of a well-trained dog working at the chore he so dearly loves to perform.

And by the way—it is reasonable to assume that not all marsh hens are hens. There must be a few roosters around somewhere.

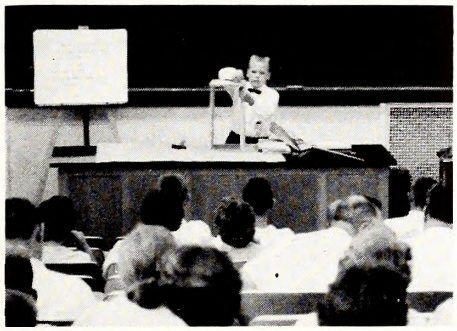
4-H WILDLIFE ACTIVITIES

Photo Short by Jim Lee

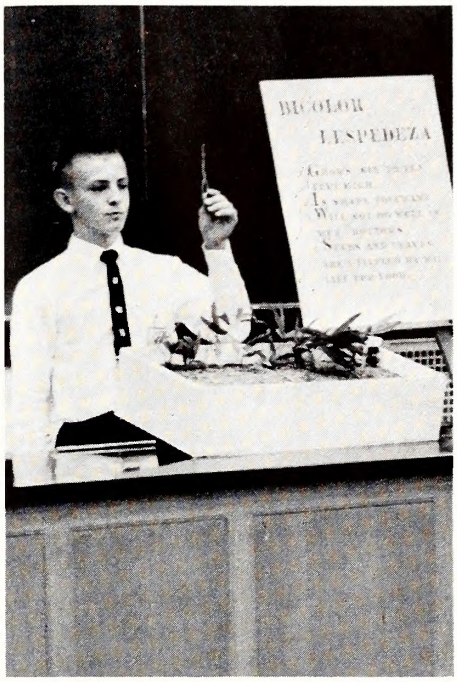
4-H boys and girls were busy recently with wildlife activities. Pictured here are highlights of their state demonstrations and wildlife camp.



"Going Fishing?" was the theme for two Hertford County lasses at State wildlife demonstrations held in Raleigh July 23.

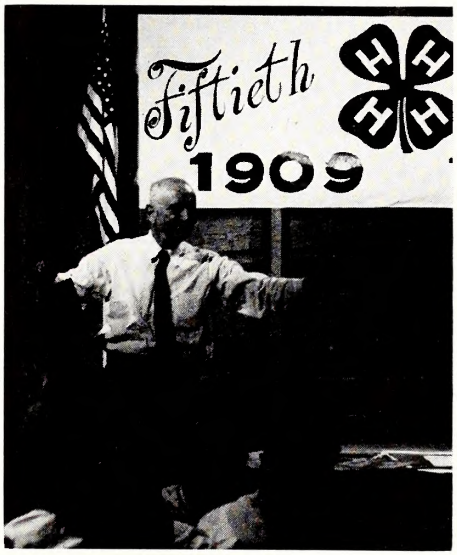


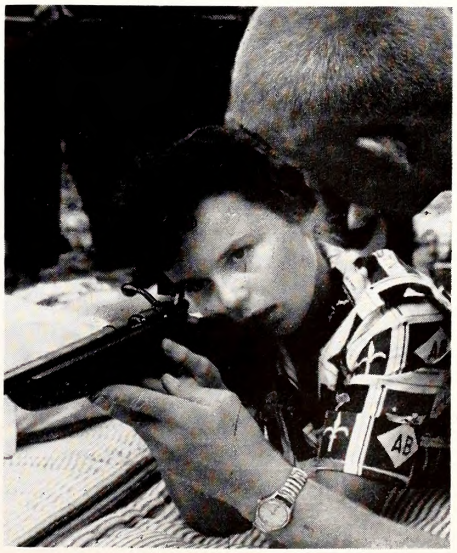
Ray Knight, 12-year-old Jackson County boy, was runner-up with his squirrel box demonstration for interested audience.

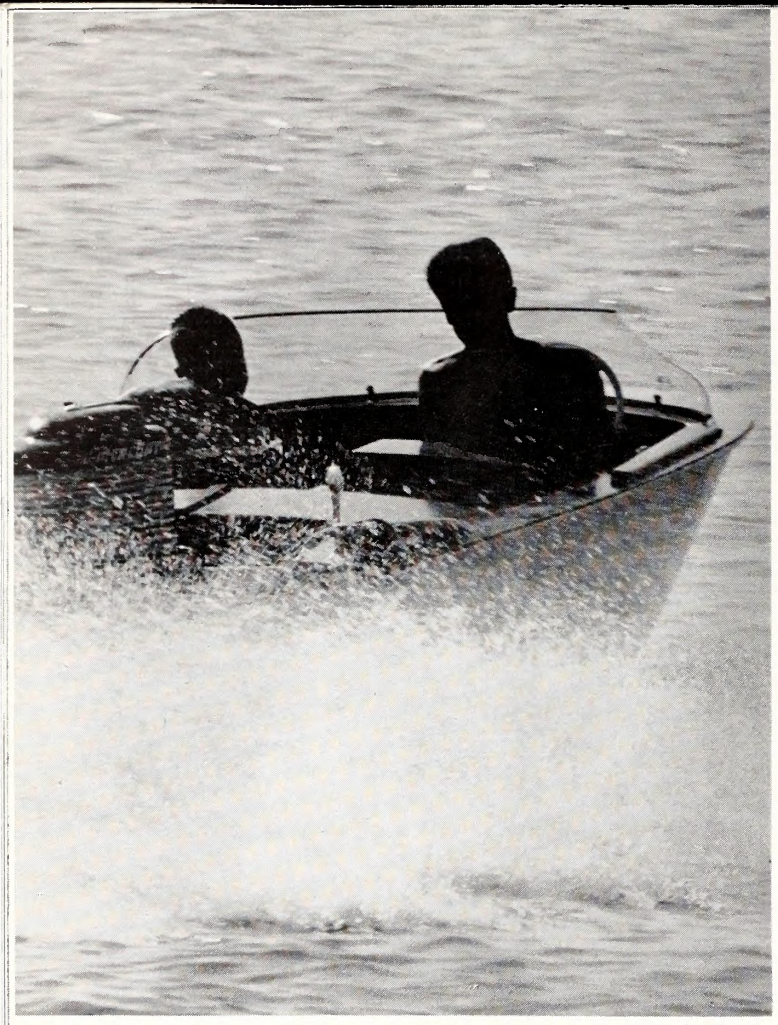


Hoke Smith, Randolph County, was state winner with his discussion of wildlife food plantings with examples from his farm.

In early August delegates from 55 counties attended the annual 4-H Wildlife Camp at Millstone in the Sandhills. BELOW, campers enjoy a cruise on the old mill pond. At RIGHT, Dr. B. W. Wells, retired State College botanist, enchanted youngsters with a lecture on Bay Lakes formations. BELOW RIGHT, Reynolds Cowles helps Ginny McCain of Nash County in adjusting her sights on the Camp Millstone range during the week. The camp was sponsored by the Federal Cartridge Corp.







Photos by Jim Lee

THE Boating Safety Act and YOU

By Duane Raver

The Boating Safety Act passed by the 1959 Legislature is rated by one Coast Guard official as "one of the best in the country." Where the law does not coincide with current Coast Guard laws and regulations, the Wildlife Resources Commission is authorized to make amendments through regulation. The Act was designed to save lives and property. The Commission, in administering the law, will concentrate on safety education—backed up with impartial law enforcement.

IT should be fairly well known by now that North Carolina has a new law (effective January 1, 1960) that regulates the operation of boats on the waters of the state. And some boaters have even read the act, no doubt, section by section. If you own or operate a boat in North Carolina you will have to know what this law contains and how it affects you, as well as what it is designed to do.

Even the most casual observer realizes that our waters are being used by more and more boats and boaters than ever before. The phenomenal increase in pleasure boat numbers is not easy to explain, but certainly the advent of glass as a boat-building material, and the introduction of relatively light and more powerful outboard engines have been important factors. Ten years ago an outboard motor of more than 10 horsepower was considered a big one and a 20-horse kicker was a monster. Now you have to own at least a 25 to defend yourself on many lakes! Some "family runabouts" (and believe me, they'll run about!) sport two 50-horsepower engines.

So, the problems mounted and are still increasing. More boats, more people, roughly the same amount of water, more speed, less experience at the wheel of the boats. It adds up to some pretty sobering thoughts. Fortunately, most of the new and larger boats are fundamentally safer than those of ten or fifteen years ago. They're designed better and more strongly constructed—which means built-in safety. This does not insure safe operation, however, and that's the objective of the "boat bill."

No one is trying to be a spoil-sport or to hamstring a fine recreational outlet, but the responsibility for boating safety had to be given to someone or some agency. This responsibility was delegated to the Wildlife Resources Commission by the General Assembly. The law makes it clear that the promotion of safety afloat is the primary reason for the existence of this legislation.

To go a step further into the background of the bill, the federal government saw the need for uniform boating regulations and passed into law the "Federal Boating Act of 1958." This law will go into effect April 1, 1960, in all states that have not enacted boating laws of their own. This federal law, enforced by the U. S. Coast Guard, would have been the regulations under which North Carolina boaters would have operated, had not a state law been passed.

This, of course, is all history and doesn't tell you, the boater, how the law affects you and what you must do to comply with it.

Motorboats

By definition, in this law, a motorboat is one propelled by machinery of more than 10 horsepower. This means that if your boat is powered by an engine of 10 horsepower or less—regardless of boat length—you are exempt from portions of this law. Unfortunately, this does not exempt you from ac-

cidents. Since the safety precautions listed can save your life and really are only the minimum for any water craft, it's to your advantage to take heed even if your boat is not classed as a motorboat.

The law divides motorboats into four classes, based on over-all length measured from the tip of the bow straight across the center of the deck (or where the deck would be) to the farthest point on the stern. Listing the classes, we have these:

Class A: less than sixteen feet in length.

Class 1: sixteen feet or over and less than twenty-six feet.

Class 2: twenty-six feet or over and less than forty feet.

Class 3: forty feet or over.

Registration and Numbering

Starting January 1, 1960, all boats powered by engines of *more than 10 horsepower* shall be registered with the Wildlife Resources Commission and shall be numbered.

The system will work this way. You, the boat owner, will make application to the Wildlife Commission for a certificate of number. This application will be accompanied by $3.00, the fee prescribed in the law. After processing, the certificate of number will be issued along with the number assigned for your boat. On file with the Wildlife Commission will be the number assigned to your boat, along with your name and address and other pertinent information.

It's your responsibility to paint or attach this number as prescribed by the Wildlife Commission to the bow of your boat so that the number is clearly visible.

The certificate of number, a pocket-sized document similar to an automobile registration card, should be carried in the boat where it is readily available for inspection. This registration is valid for one year and is renewable each January 1. If you sell your boat, you must notify the Wildlife Commission and the new owner must file an application, accompanied by $1.00, with the Wildlife Commission.

Requirements for Class A Motorboats

Every Class A motorboat, while under way, shall carry and exhibit from sunset to sunrise, a white light aft which can be seen all around the horizon for a distance of at least two miles under normal clear weather conditions. To meet Coast Guard regulations there must be a combined lantern in the fore part of the boat, showing green to starboard and red to port. The combination light must be lower than the white light aft.

If your boat is powered by both engine and sail, the same requirements apply as for power alone. If the boat is propelled by sail alone, only the combination light is to be shown. However, a white light must be available to show in time to avert a collision. This emergency light requirement applies to *all* boats of any size, when under *sail alone.*

In addition to the lighting requirements, there are several items of safety equipment listed under "Requirements for All Motorboats."

Requirements for Class 1 Motorboats

Every Class 1 motorboat, while under way, shall carry and exhibit a combined lantern in the forward part of the boat and a white light aft and higher than the fore light. The combined light must be visible for one mile on a clear night. When propelled by *sail alone,* the same requirements apply as those for Class A boats. See the section "Requirements for All Motorboats" for additional safety equipment.

Requirements for Classes 2 and 3

Every motorboat of classes 2 and 3 shall have a bright white light in the fore part of the boat, showing an unbroken ray over an arc of the horizon of twenty points of the compass, so fixed as to throw light ten points on each side of the vessel. In addition, a bright white light aft to show all around

Many more boats and boaters afloat on the water means that some way of assuring safe operation had to be devised. The Boating Safety Act was designed to protect life and property.

Before you take that ride, make sure that the necessary safety equipment is on board. The owner must provide life preservers, fire extinguisher, and lights if the boat is used after dark.

the horizon and higher than the white light forward. Also, a green light is required on the starboard side, constructed to show an unbroken ray over an arc of the horizon of ten points of the compass and a red light on the port side similarly placed. These side lights shall have inboard screens if necessary to prevent their being seen across the bow. When *sail alone* is used, the colored side lights are required but no white lights are to be shown except to prevent a collision.

Water skiing, one of the most popular boating sports, has its hazards. Under the new act, there must be an observer in the towing boat or the boat must be equipped with rear view mirror.

Additional Requirements

All motorboats of classes 1, 2, and 3 shall be provided with a whistle or other sound-producing mechanical device. Every motorboat of classes 2 and 3 shall be provided with an efficient bell.

Requirements for All Motorboats

Every motorboat shall carry at least one life preserver, life belt, ring buoy, or other device specified by the Wildlife Commission, for each person on board. These life preserving devices shall be so placed as to be readily available. The law states that every motorboat shall be provided with a fire extinguisher of a type to be prescribed by the Wildlife Commission. These fire extinguishers shall be capable of promptly and effectively extinguishing burning gasoline. This equipment shall be kept in good working order and accessible at all times.

If you have an inboard engine, its carburetor shall be equipped with an efficient flame arrestor or similar device, to be specified by the Wildlife Commission.

The law states that every motorboat except open boats shall have properly and efficiently ventilated bilges of the engine and fuel tank compartments. This ventilation will be spelled out precisely in regulations of the Wildlife Commission.

The act states that the exhaust of every motor—inboard or outboard—of more than 10 horsepower shall be muffled to minimize noise in a reasonable manner.

Rented Motorboats

If you operate a boat livery renting boats equipped with motors of more than ten horsepower, it is your responsibility to equip all such boats as stated in the act. It is not the responsibility of the renter to provide the prescribed equipment.

Reckless Operation

In addition to registration and equipping of boats, the act is specific in its regulations concerning actual operation of motorboats. In this regard, *all boats*—whether motor-equipped or not—are included. The act states that no person shall operate *any* boat or manipulate water skis, surfboard or similar devices, in a reckless manner; and that no person shall operate *any* vessel while intoxicated or under the influence of drugs.

Should a collision or accident occur, the operator of a boat involved shall render aid to persons affected. In case of collisions or accidents resulting in death or injury to a person or property damage in excess of one hundred dollars, the operator of the boat involved shall file a full description of the accident with the Wildlife Commission within ten days.

The act prohibits the operation of any boat towing a person or persons on water skis, a surfboard or similar device unless there is someone in addition to the boat operator in the boat who can observe the person being towed. The only exceptions made are if the person or persons being towed are wearing life preservers, or if the boat is equipped with a rearview mirror—then no extra observer is necessary. The law prohibits any water skiing or similar activity from one hour after sunset to one hour before sunrise.

Motorboat Races and Regattas

There are exceptions to many of these regulations while motorboats are participating in races, shows and similar performances. The authorization of any such water show or race is left up to the Wildlife Commission. While certain safety precautions are in effect during the performance, exhaust mufflers are not required on racing boats and no fire extinguisher has to be carried. Such racing boats do not need to carry bells or whistles during a planned performance.

It's Up to You

As you can see, digesting the details of this legislation is no easy matter. However, all the requirements are sensible, lifesaving rules designed to make boating safer and more enjoyable for everyone. It will take time to iron out all the rough spots in this far-reaching plan; questions will arise and will be worked out. The administration, enforcement and education are the duties of the Wildlife Commission—carrying out the law is up to you.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Tarheel Shooting Season Gets Under Way

First shots at North Carolina game will begin half an hour before sunrise on September 5 when the season on marsh hens (rails, sora, gallinules) opens along the coastal marshes. The bag limit will be fifteen birds daily and thirty in possession after opening day. The bag may contain any one of the three or a combination. The limit on sora is a reduction from last year's allowance of 25 birds daily and in possession. Shooting hours are from one-half hour before sunrise to sunset. See elsewhere in this issue for tide information.

Dove Seasons Set

North Carolina will again have a two-segment dove season, with the first set for September 12-October 10 and the second December 11 to January 15, with shooting hours from noon to sunset. Bag limits are ten daily, twenty in possession after the first day. Most reports indicate a good crop of birds.

Public Drawings to be Held for Certain Managed Hunts

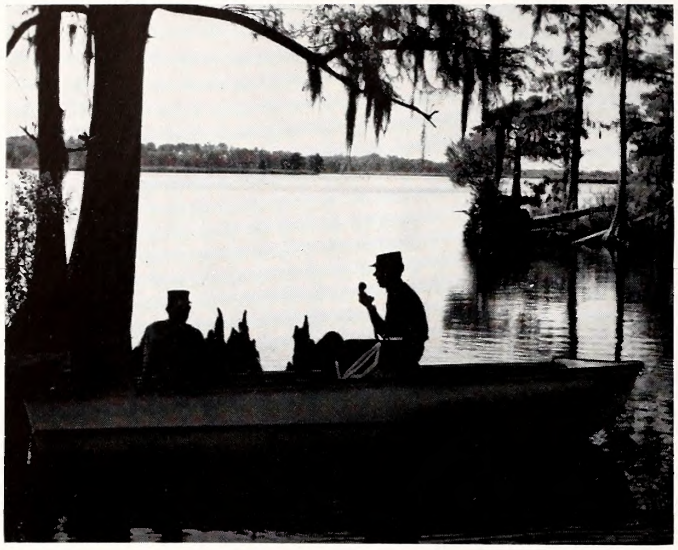
The public drawings for party bear hunts on western wildlife management areas will be held at 9:00 a.m. September 23 at the Waynesville Courthouse. Purpose of the drawing is to determine successful applicants for the 50 bear and bear-boar party hunts for Santeetlah, Sherwood, Mt. Mitchell and Daniel Boone wildlife management areas.

North Carolina Wildlife Federation to Meet in Pinehurst

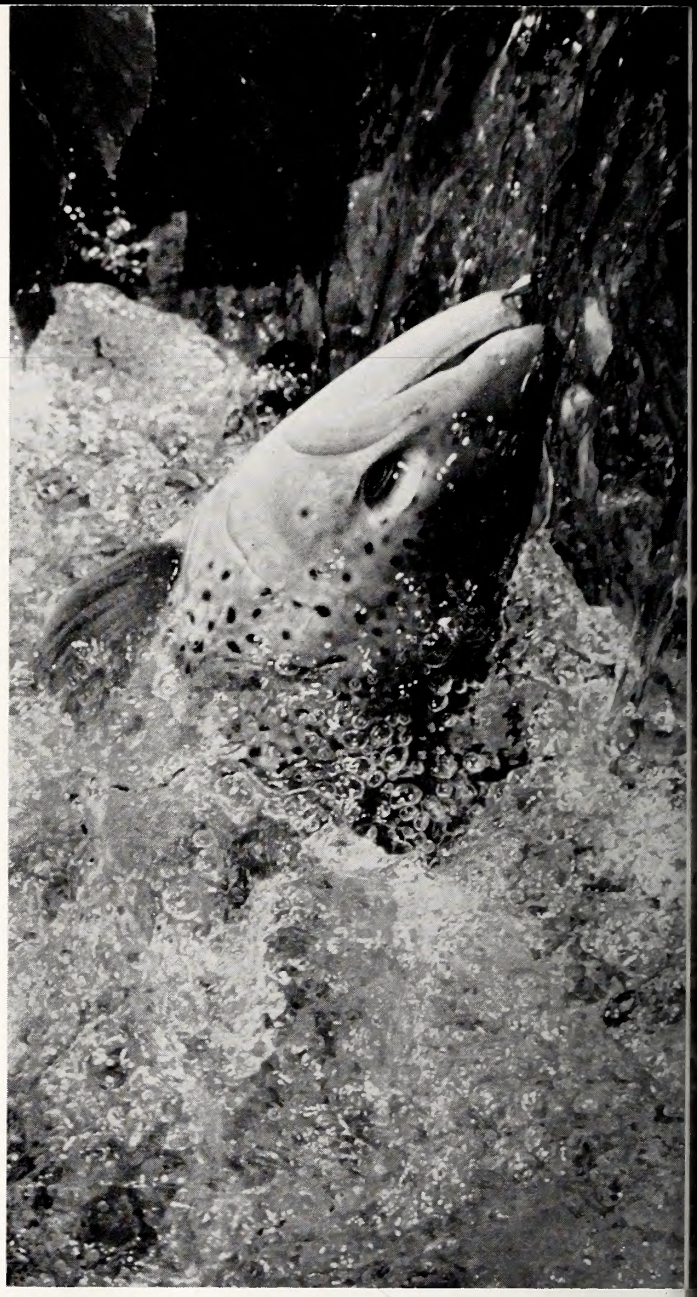
The 1959 annual meeting of the North Carolina Wildlife Federation will be held at Holly Inn, Pinehurst, October 2 and 3. The session will be preceded by a directors' meeting on October 1. Attendance is expected to be several hundred delegates, including members from three new clubs; Davie County, Eastern Wilkes and Castle Bridge wildlife clubs announced affiliation with the Federation in August. Following the meeting will be a Saturday afternoon dove hunt at the nearby Sandhills Wildlife Management Area.

Public Hearings to be Held

Plans are now being made by the Wildlife Resources Commission for public hearings throughout the state on two important items. Seasons for shooting antlerless deer during 1959 in locations outside wildlife management areas, and fishing regulations for the calendar year beginning January 1, 1960, will be established following public hearings on these subjects. When established, the times and places for these hearings will be announced through the press, radio and television.



As the heat of summer begins to wane in September, fish regain their appetites, and fishermen flock to productive waters. As usual, wildlife protectors are on the job safeguarding the interests of sportsmen and standing by to help anglers in need.



September Afield

Photo Feature by Jack Dermid

The vanguard flights of Canada geese usually arrive at Lake Mattamuskeet during the last week of September. They bring excitement to the lonely marshes and a promise of good hunting. Biggest flights will occur on the moonlight nights of October.

In September, buck deer sport new sets of antlers and the time has come for them to rub off the velvet and polish the tines to perfection. This freshly skinned sapling in the Uwharrie Wildlife Management Area tells a story of polishing activity.

arge brown trout jumps to shake a fly from its lip. Trout ermen who failed to net a whopper during the regular sea- will have the opportunity to try again during the extended tember season in certain waters. See page 22 for details.

The foods of autumn ripen. Landowners who want to boost wildlife should leave narrow strips of soybeans (below) or other crops along field edges and delay plowing until late winter so that game can glean the wastes left by harvesting operations.

Nesting success for doves was excellent this year, and hunters can expect hours of fast wing shooting when the season opens at noon on September 12. See Resource-O-Gram for season regulations, and remember to obtain permission before hunting.

During early autumn, coastal nesting egrets (below) and herons invade inland ponds and streams. These water birds are protected by Federal law and deserve complete protection. They are beneficial to the angler because they feed on overpopulations of stunted bream that often ruin fishing in farm ponds.

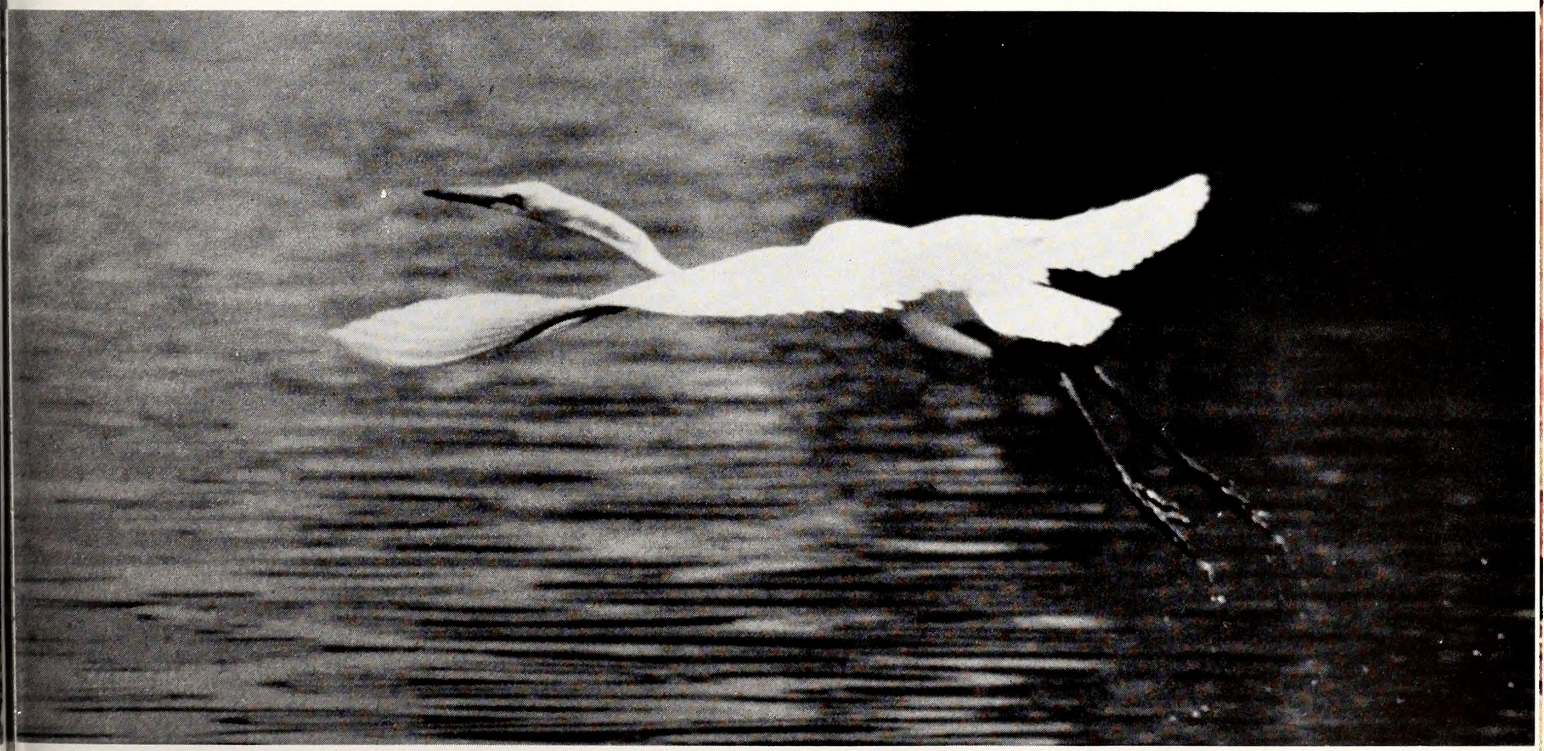


Photo by Jack Dermid

The WHITE-TAILED DEER
—a Blessing and a Problem

Deer management from the forester's viewpoint: We can raise two crops where only one grew before by proper coordination of harvest methods.

By T. H. Ripley and R. A. Campbell
Staff Specialists (Wildlife)
Southeastern Forest Experiment Station, Asheville

THE whitetail is one of the most popular game animals wherever it occurs; clearly, its popularity is a real measure of its importance in the forest community. Although difficult to measure, we know that deer provide many hours of valuable recreation for an army of sportsmen, and have great aesthetic appeal to the public at large.

Whitetails, however, can create serious problems in the forests they inhabit—problems that are of concern to foresters and biologists alike. Both foresters and biologists recognize that excessive deer populations can conflict directly with effective timber management and stand improvement. They also recognize that the broadest public interest can best be met by coordinating their work to keep deer in balance with the forest food supply.

Many items of the whitetail's diet are shrubs of little or no commercial value. On the other hand, a favorite "menu" includes some timber species of high value such as yellow-poplar. While yellow-poplar can be successfully reproduced in average deer population areas, a combination of too many deer and too light a timber cut can result in very little new young yellow-poplar.

This problem is documented in an old hardwood stand in Bent Creek Gap of the Pisgah National Forest. Immediately after the site was logged in 1936, a small area was fenced to observe long-term effects of too many deer on yellow-poplar regeneration. Old-timers will recall that this was the period during which the Pisgah herd built up to an all-time high, culminating in a drastic die-off in 1938. An excellent stand of young poplar has developed inside the fenced area, but not on the outside.

Today we have a herd that is generally tuned to the cutting activity of the moment. Our Pisgah herd is considerably smaller than it was 20 years ago but we are harvesting about the same number of deer as we did then. A supply of newly-created browse following timber sales keeps the herd go-

ing. Important, too, are supplemental measures such as pasture plantings, browse openings, and seeded skid roads and log landings. This program of timber management and supplemental measures provides food for a capacity herd. But carrying such a herd imposes the responsibility of annual cropping to keep it from reducing the quality of the range.

Proper herd management can be an important factor in alleviating seedling damage and destruction, but herd management alone is probably incapable of solving the dual problems of herd maintenance and quality timber production. Skillfully employed cutting practices have a potential of paralleling good herd management to produce more and better deer and still attain good stand management.

High quality deer browse is usually produced as a by-product of one of two general methods of timber harvesting: (1) forest-wide all-aged management with selective cutting, or (2) localized clear cutting in blocks on a rotation in large cutting compartments. For years we have practiced the former, and in better mountain hardwood sites where deer are abundant we have seen that repeated browsing of valuable regeneration slowly reduces stand quality.

On the other hand, in some areas that have been essentially clear cut, using logging methods that reduce site damage, the resulting regeneration seems to be producting better stands. Why? Perhaps the deer are actually provided with more browse than they can use. Perhaps they tend to browse more succulent sprout growth which permits seedlings to develop with a minimum of damage. If this is the case, it may be possible to return to heavily cut areas and re-cut sprout growth to produce a resurgence of browse and release valuable seedlings once the seedlings are safely above the reach of deer.

It may be reasoned that size and location of heavily cut areas are most important factors, though poorly understood. There is much that we don't know about deer and timber management —more research is obviously needed. We can be sure, however, that realistic annual deer harvest is vital to sustained production, regardless of the timber management practiced.

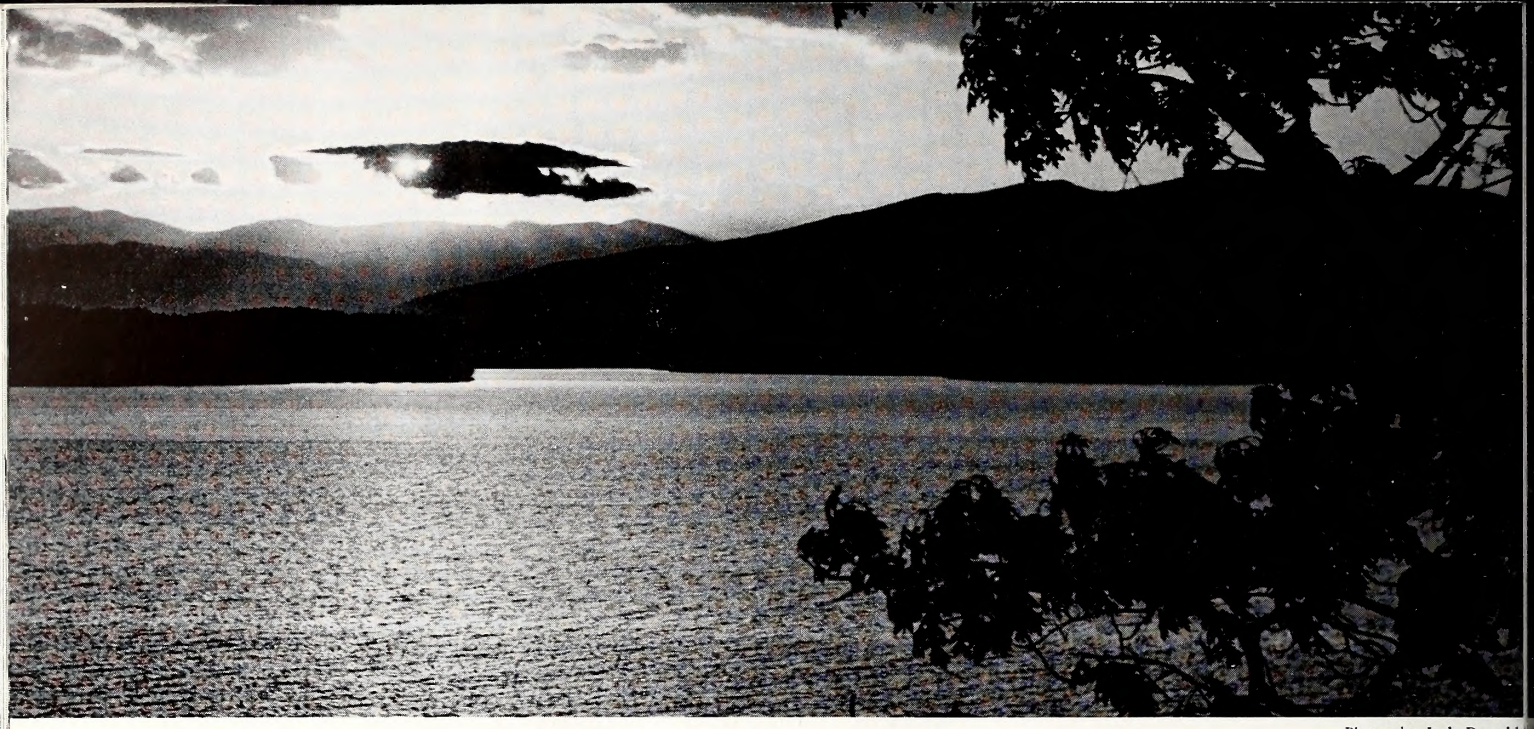
An overpopulated range, whatever its productive capacity and total number of deer, produces smaller animals with poor antler development, greater susceptibility to disease and starvation, and fewer fawns—in short, trouble!

Deer populations are not static—they are highly dynamic. Herds build up and decline following roughly the abundance and scarcity of browse-type foods. The Pisgah herd is a good case in point. Tremendous build-ups in populations during the thirties paralleled marked increases in palatable browse following heavy logging operations between 1920 and 1930. Subsequently, much of the browse has passed beyond the reach of deer, and the decline in peak population was punctuated by wasteful die-off in the late thirties.

Despite recent and notable progress in forest-wildlife management, we still face two very important problems. More effective hunting harvest is one, but equally important is our need to develop cutting practices that will favor, at the same time, the herd and valuable stands of mountain hardwoods. Independently, and in cooperation with other agencies (including the North Carolina Wildlife Resources Commission), the Southeastern Forest Experiment Station is conducting basic research designed to provide answers to this important problem.

U. S. Forest Service Photo

Too much browsing by too large a deer herd twenty years ago kept yellow poplar from growing outside this fence. If the herd had been in balance with the food supply, large trees could now be growing outside as well as behind the fence. The authors say that present-day management is geared to produce both timber and wildlife.



Photos by Jack Dermid

Not by Dollars - Not by Laws

By Ernest Swift
Executive Director, National Wildlife Federation

The dollar would have no value were it not for the vast natural resources which back it up.

THE entire philosophy of American culture has all the earmarks of revolving around the sanctity of the dollar—especially the American dollar.

However, there is no argument but that we need some basis of exchange and the United States dollar has been very satisfactory, even with inflation.

But the dollar has become the standard and symbol for fulfillment of all human desires, as well as a means of controlling the destiny of peoples of other nations throughout the world so that our standards will remain secure.

With the dollar we attempt to purchase security, friendship, education, plush living conditions, integrity, recreation and a guaranteed equity in the hereafter.

If we cannot obtain our objectives with the dollar standard, we immediately want to pass a law. With a new law and a dollar to back it up, we take the sanctimonious attitude of a job well done.

Today at least one-half of the taxpayer's dollar goes to purchase national defense, in an effort to secure us from outside aggression.

With more dollars we attempt to buy friendship throughout the world by distributing both valuable and useless goods to the so-called less fortunate nations. However, we apparently fail to understand that with our purchase of friendship goes the American air of superiority. People do not like to be obligated and deeply resent condescension.

In worshiping the clay images of living standards, we attempt to bribe the heavenly hosts with material offerings.

Because true education is strictly an achievement gained through effort and mental discipline—and a thorny road at best if ever mastered—the essence of educational precepts are being diluted. Standards are lowered so that mediocrity will not be offended, and delightful substitutes of a social nature replace cold, basic study. Many of these substitutes and diversions are more costly than the drabness of sound education, but they do give opportunity to boast about all the money spent on the school systems.

Recreation is no longer a matter of a rag doll, a tent in the back yard made of old quilts, a ball made of yarn, mumblety-peg, a swimming hole in the "crick", going barefoot, a spoon hook with a hand line, a highly prized shotgun or rifle; or simply a long walk in the country.

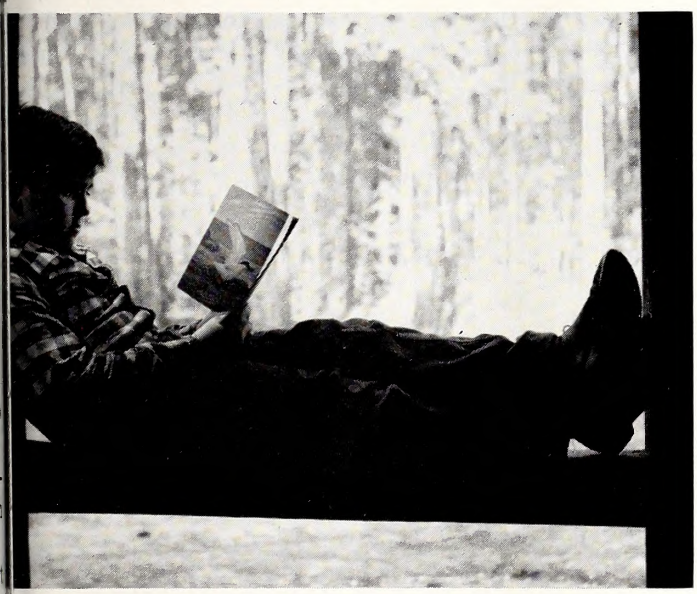
From the cradle to the grave, recreation has become industrialized, regimented, professionalized and is astronomically costly, which tends to cheapen it and make it tawdry. Today turning on and off the TV constitutes most of our muscular exertion.

The individual is no longer the creator of his recreation. The manufacturer of recreational goods and the recreational goods merchant make the people pay plenty if they are presumptuous enough to want fun.

There is nothing wrong with the dollar, but it is not the answer to every human desire and ambition. The dollar would have no value were it not for the vast natural resources which back it up.

Raw resources and manufactured goods are the only material elements that can be used as a basis for the dollar standard. What the dollar does, is to merely simplify barter.

Some people can see no value in resources unless they are measured by the dollar standard. Sometimes this is strategy used to place other values in a defensive position, such as outdoor recreational opportunities and esthetic values.



Conservation education should begin with the small child and should create a reverent attitude for our natural resources. Then a deep sense of individual responsibility will follow.

Those who can see values other than monetary are accused of emotionalism. "Esthetic" appreciation has become synonymous with emotionalism almost to the point of being a dirty word—a person valuing the esthetics is accused of having a perverted outlook.

I have seen far more emotionalism displayed because of the loss of a dollar than I ever have from the loss of esthetic values.

As resources become scarce the value of the dollar pyramids. But when no resources are left, the dollar cannot be eaten, will keep no one warm, will not house people or put clothes on their backs; nor will the dollar add much to the country's scenery.

Too many conservationists today—professionals and amateurs—have been deluded by the philosophy that resources can be saved simply by appropriating money and passing laws.

Some professionals, so-called, have never exerted their mentality to thinking the matter through to a conclusion. The individual responsibility of citizens is too little emphasized.

It is plain to see that with all the legislative mills grinding out appropriations and a myriad of other laws, we have arrived at the dubious point of progress in the management of resources where either we have to subsidize, bribe, police or pass other restrictive laws to save anything.

When I hear professionals check off their legislative victories for big appropriations and more laws, I wonder how genuine these victories are. Probably their way is the only immediate solution, but to me it simply reflects a cesspool of mass ignorance and poor citizenship. If individuals had more sincerity about resources, we would have less need for appropriations and laws.

Stating the issue bluntly: Should a supposedly patriotic farmer, who would go to the defense of his country in time of war, be subsidized to carry out sound resources practices on his own farm? Is protecting his farm not a patriotic and civic duty? What will he profit from his dollars in the bank when his farm has eroded to the sea?

We must consider the industrialist just as patriotic. Then why doesn't this patriotism extend to cleaning up the stream pollution he has caused? Take the red-hot, avid sportsmen who eternally criticize public conservation agencies: if they are so pure and sincere, why is it necessary for the states to spend 30 percent of their fish and game revenues for law enforcement?

Is patriotism and civic responsibility simply a short-term proposition for the citizen?

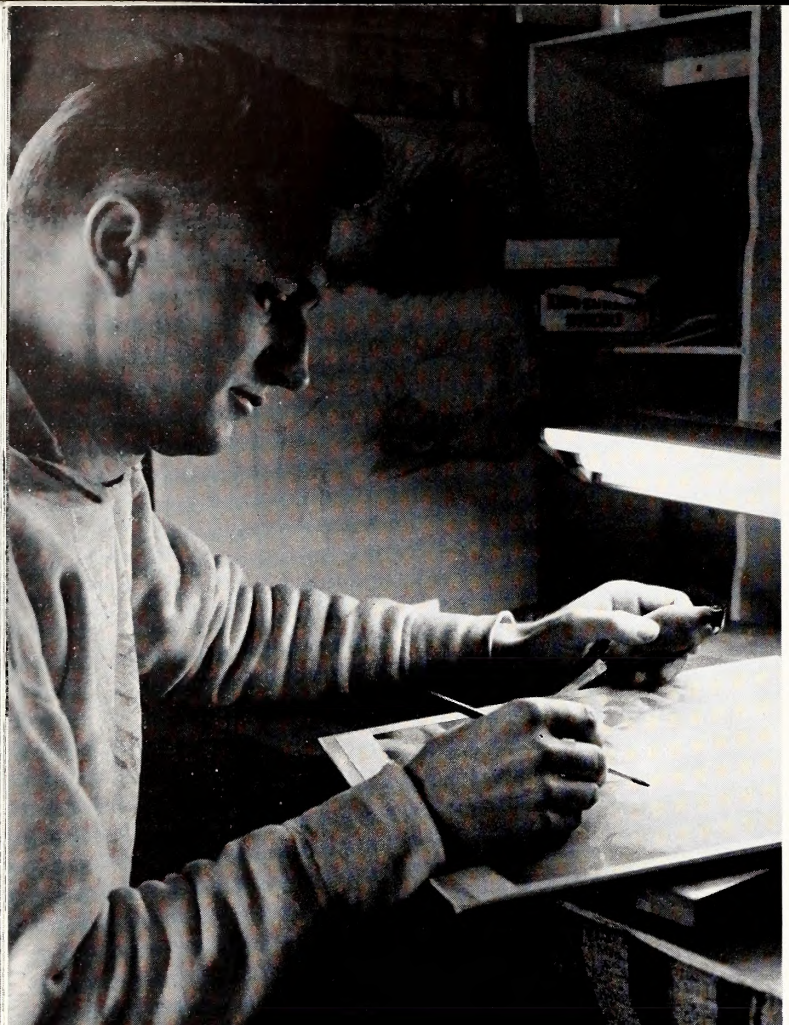
For a long time now, much has been said about the dire need for public education in resources. There are many diverse opinions about who to educate, what to stress and how to educate. The subject continues to be debatable, and let us recognize there are many unsung heroes doing a masterful job at the community level.

There is no question that education is a strong force to forestall ill-advised and unwarranted change, as well as to promote sound and intelligent planning for the future.

Resource education should not be a heterogeneous mass of material crammed into the minds of people like force-feeding a Christmas goose with noodles.

Conservation education should start with the small child and should relate to his daily living habits to instill in him an awareness of the problems. But above all conservation education should create a reverent attitude for resources and then a deep sense of individual responsibility will follow.

If that time ever arrives there will be much less need for appropriations, laws and lobbying.



Photos by Jim Lee

Wildlife Artist

JOHN W. TAYLOR, JR.

This month's cover painting is the work of one of the Nation's outstanding young wildlife artists, John W. Taylor, Jr. In future issues there will be brief biographies of other wildlife artists who contribute to the covers of your magazine.

By Jim Lee

YOU might expect to find a wildlife artist at work on a mountain peak, knee-deep in swamp water, or crouched in a blind in the forest. But John W. Taylor, Jr., is producing paintings of birds and mammals in the midst of a metropolitan area of two million people, Washington, D. C. His paintings, however, bear a stamp of authenticity which suggests that location is no handicap to a wildlife painter—if he uses the resources around him.

John Taylor is an intense young man who is making a profitable side-line profession of wildlife illustration. He markets his work with state conservation magazines, general-interest magazines, newspapers and greeting card companies. In recent months such magazines as *Virginia Wildlife, Ohio Conservation, and Pennsylvania Game News* have used his covers.

Taylor is a serious ornithologist who has put his love for birds to work. Born in Washington in 1931, he spent most of his childhood in Front Royal, Virginia. He finished high school in Washington after his family returned from the Virginia mountain town, but he still spends vacations in the area. Nearby are the George Washington and Shenandoah National Forests, where he spent many boyhood hours. Vacation means walking these same paths, with sketchbook and camera recording backgrounds as well as the wildlife he sees.

Following high school, Taylor worked for a while in Maryland for a county newspaper, and then for the U.S. Fish and Wildlife Service. Part of his time with the Fish and Wildlife Service was devoted to banding birds along the Maryland and Delaware coasts, and the remainder in the National Museum. There the Federal agency maintains a laboratory for identification purposes, in cooperation with the museum. Taylor's work involved answering queries from the public using the study skin collection for reference. This collection is a reference library for those interested in the fine distinctions separating different species of birds—and this experience gave the young artist a thorough grounding in bird identification.

The Army took over Taylor's career for two years, 1954-56. This service took him to Germany for a year, providing an opportunity to visit and study the work of several European bird painters.

Taylor went back briefly to the Fish and Wildlife Service after his return from military service, and then launched his career as a free-lance artist. Enrolled in night classes at the Corcoran School of Art, he rigorously kept a day-time schedule at his drawing board. In the spring of 1959, he accepted

a position as editor of *The Maryland Conservationist*, and now does his free-lance work at night and on weekends. He commutes daily to Annapolis, Maryland, where the editorial offices of his magazine are located.

The work of a successful wildlife artist must meet two requirements aside from those necessary to make any picture appealing. The animal must be portrayed accurately, and the background must fit the subject. Taylor has access to the collections at the Smithsonian, and frequently borrows study skins to assure accurate fur and feather detail. Live models are far more reliable than stuffed specimens as far as poses are concerned; here he turns to his own collection of photographs and to the live animals at the vast National Zoo. He selects appropriate backgrounds from photographs and from his knowledge of animal habitats gained through years of careful observation.

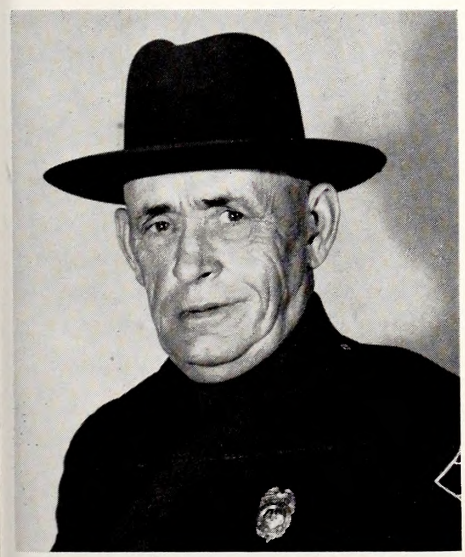
Taylor's favorite medium is water color. Using heavy illustration board, he applies a wash of the background colors and then adds details with opaque water colors. These heavier pigments give him the control necessary for fine detail. Working in black and white he uses scratchboard for most illustrations, since this medium lends itself to the desired detail.

Are there opportunities for artists who want to make their living painting wildlife? John Taylor thinks so. "More than ever before," he asserts, "people are interested in birds. And publications are responding to this interest with articles and illustrations of bird life."

Artist Taylor is shown examining a study skin in the U. S. Fish and Wildlife Service's identification laboratory at the Smithsonian Institution, Washington, where he formerly worked.

For one interested in furthering his knowledge of birds, Taylor has found a particularly satisfying occupation, since, he says, "I learn something new about birds every time I look at one."

PROTECTOR OF THE MONTH



H. T. Bowmer

H. T. Bowmer of Southport, Wildlife Protector for Brunswick County, was born in Benton County, Missouri, on August 31, 1895. The son of the late Mr. and Mrs. J. W. Bowmer of Stockton, California, he attended school in Sedalia, Missouri.

Mr. Bowmer came to Southport on August 20, 1927, and was a commercial and sport fisherman until 1942. He served as a guard with the U. S. Navy during World War II, and has worked with the Wildlife Commission since December 1, 1944. He has attended four Wildlife Protectors' Training Schools, conducted by the Institute of Government in Chapel Hill.

Mr. Bowmer is married to the former Orene Price of Southport, and has a son, Tommy Bowmer, of Southport, and a stepson in the Navy. The Bowmers attend the Southport Baptist Church.

In addition to his wildlife work, Mr. Bowmer is also very active with the Boy Scouts and with school children's activities.

ENFORCEMENT RECORD FOR JUNE

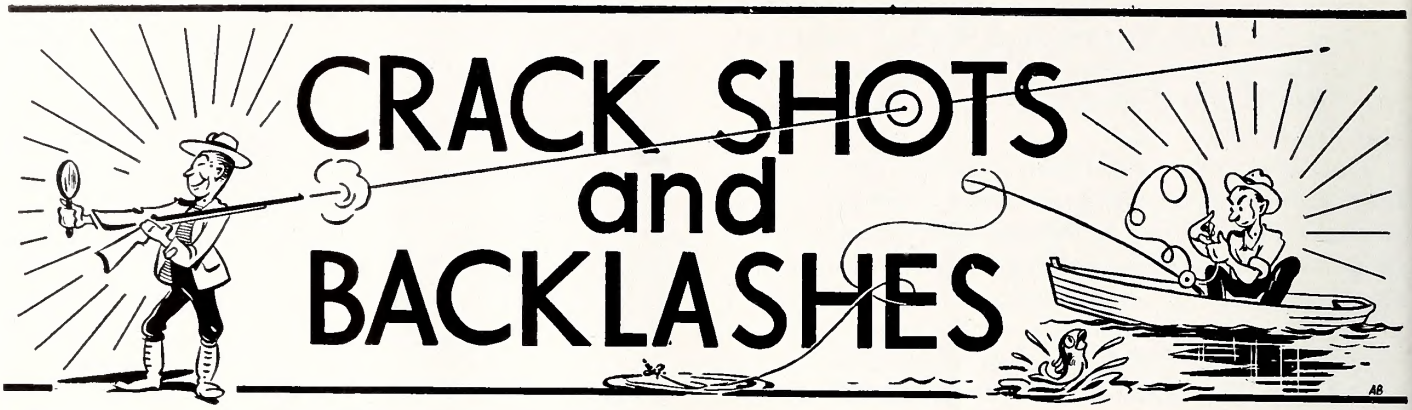
Persons checked	39,269
Total prosecutions	961
Total convictions	942
Total cases not guilty	8
Total cases nol prossed	11
Total fines collected	$3,664.05
Total costs collected	$7,471.04

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is it a violation to kill an American bittern (better known by many older hunters as sage hen or squak)?

ANSWER: It is a violation of the Federal Migratory Bird Regulations to take bittern or have them in possession.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Like many other publications, this one gets some mighty interesting mail. One of the strangest came last May from Tyler, Texas. Why the writer addressed his correspondence to *Wildlife* is something of a mystery. He might have seen our magazine somewhere and it was his sole contact with North Carolina. He wanted to get in touch with somebody official within the State to report an escaped convict. At first glance the letter looked like a spoof from one of our traveling friends with a sense of humor. After some thought we gave the letter to Walter Anderson of the S.B.I. The S.B.I. in turn, gave it to the State Prison Department, which agency contacted the F.B.I. Hours later an escapee from a North Carolina prison farm was picked up near New Orleans and is now residing again in a North Carolina prison.

What seemed to be a spoof turned out to be a mighty serious matter for persons directly connected.

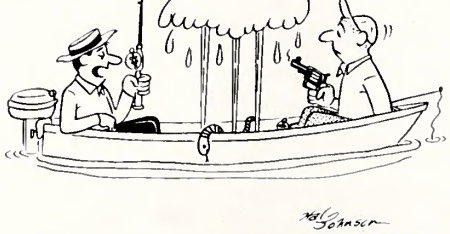
Pet Coons

DEAR SIRS: If any one wants to know if 'coons make good pets I have the answer. They make swell pets, but inquisitive pests. I have had four of them in the past two years. I had two the first year and two the second year. The first year some loggers were cutting a tree down and they found a nest of raccoons. The dogs killed the parent and one of the baby raccoons. There were three left and a friend gave two of them to us. We named them Pete and Repete and I took care of them. Fed them milk and weaned Pete, and Repete died of pneumonia. Pete used to bask on our roof until mealtime, and then climb down by the nearest tree that offered transportation. Then he would climb up the dinningroom screen door and make a funny chur-rinng noise until we fed him. Sometimes he opened the door himself.

When we got the second pair nearly the same thing happened except we gave one to my cousins, and all of our 'coons ran away.

I like your magazine a lot. My Dad gets it and I read it. I am ten years old and love the outdoors. JANET ELISE MONTGOMERY, SMITHFIELD

We agree that 'coons make nice pets, but insist that all wild creatures fare better in their wild habitat; further, we trust that the proper permits were obtained to possess Pete, Repete and his kin.



"Yep, you killed the snake all right!"

Sends Magazines to Schools

DEAR SIRS: Please enter the subscription to Wildlife as listed on attached sheet. It has been my pleasure for the past eight or ten years to share our magazine with some twenty boys and girls in various states—mostly North Carolina, who nearly use it in their school work. Most of them are white but several are colored and all of them tell me that they enjoy the magazine and look forward to receiving it every month.

If a lot of the adults who subscribe and enjoy the magazine would have it sent to one or more children our magazine would grow—many children would gain in knowledge of wildlife and become good sportsmen. But the greatest satisfaction would come to the adult who made it possible for the children to get the magazine. I know from the thanks I receive from those I have sent it to, and it cost so little for so much. WALTER H. BLUNDELL, COINJOCK.

We are grateful for the suggestion and for the fine use to which our magazine is put.—Ed.

Waterfowl Regulations

DEAR SIRS: I have been hunting ducks for quite a few years, in this state, and other southern states. Every year I try to obtain answers to certain important questions, and every year I seem to get a run around—or contradictory answers.

Please enumerate the specific regulations relating to shooting ducks from a boat, used as a blind, with and without a motor attached.

I have heard that the boat must be tied if it is used as a blind. Yes or no?

I have heard that if a motor is used, it must be placed in the bottom of the boat, before any shooting is done. Right or wrong?

In conclusion, what regulations actually apply to questions such as these, State or Federal? DICK CHAMBERLAIN, NORTH WILKESBORO

P. S. One further specific question. Is it permissible to use a boat blind, with attached motor tipped up out of the water, while drifting downstream in a river, shooting ducks as they are flushed—then using the motor to retrieve?

Regulations regarding the use of boats in taking waterfowl are complicated indeed. According to federal regulations a boat with a motor attached may be used for taking waterfowl only when it is beached, at anchor, or fastened within or tied immediately alongside any type of fixed hunting blind if shooting from the boat is planned. A boat without a

motor need not be anchored, etc.

To be detached, a motor does not necessarily need to be placed in the bilges, but it must not be attached so that it could be used to propel the boat. Remove it from the transom and place it anywhere in the boat you wish.

As to applicability of state or federal law, waterfowl law and regulations are federal, originating in the Migratory Bird Treaty. The U. S. Fish and Wildlife Service regulates seasons and bag limits and the manner of taking migratory game birds. North Carolina state law requires the Wildlife Resources Commission to adopt and enforce federal laws and regulations.

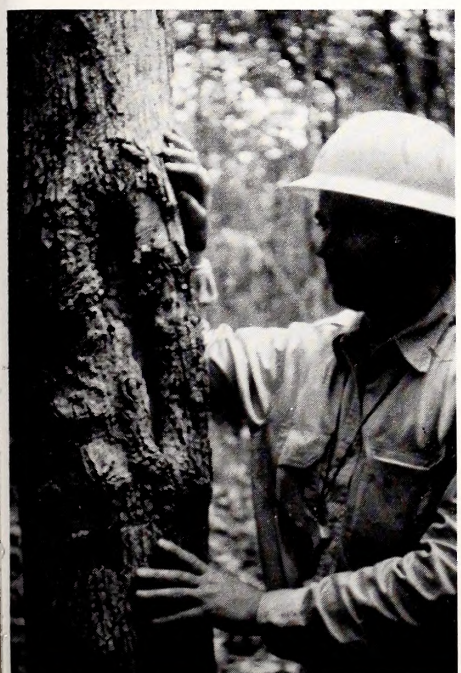
The attachment or detachment of a motor applies to a boat blind just as to any other boat used in taking waterfowl. While drifting in the process of hunting, the motor must be detached. It may, however, be attached and used to retrieve dead or crippled birds.

For a copy of migratory bird regulations, write to: Bureau of Sports Fisheries and Wildlife, Fish and Wildlife Service, Washington 25, D. C.

Bear Tree

DEAR SIRS: This past spring we made a reconnaissance on a crawler tractor through the lower end of the Dismal Swamp in Pasquotank County.

We chanced upon a "bear tree" that showed considerable marking, both old and recent. A picture of same turned out fairly well, so I am enclosing a print for your reference.



The tree is a sweet gum. Note the fang mark on the freshly barked area. There were claw marks on the opposite side of the tree. That's me in the picture and I'm six feet tall. W. W. WICKS, HALIFAX PAPER CO., ROANOKE RAPIDS.

Bears, usually males, seem to enjoy showing off their size and strength to other bears by reaching as high up on the trunk of a tree as possible and making claw marks. The bigger the bear, the higher and deeper the marks. Some believe that this serves as a warning to other bears to stay out of a particular territory. A printed sign to the same effect would say "See how big and strong I am. Move on, Bud!"

Can't help wondering how a tree-marking bear feels when he comes back to find the markings of a bigger, stronger bear . . .

Dove Retriever

DEAR SIRS: I have just bought a 6-week old female setter. Her father was an A.K.C., registered Brittany, and her mother was a full blooded (though not registered) English Setter.

As most of the bird hunting I do is restricted to dove, I would like to make her strictly a dove retriever. How well will this type of dog adapt itself to this kind of hunting, and do you think she will be a good retriever? JOHN H. BIGELOW, GRANITE FALLS

The answers to these questions depend mostly on the dog. If she has inborn retrieving instincts, and is properly trained, she should do a good job on retrieving doves. I have shot over a Lewellyn Setter -Springer Spaniel cross that retrieved everything from jackrabbits to ducks without any special training except the ordinary retrieving procedure.

Clyde P. Patton, Executive Director of the Wildlife Resources Commission helped the Ashe County Wildlife Club celebrate an important occasion recently when the club burned a $3,000 mortgage note. Left to right are past presidents George Shepherd, R. L. Austin, and James Tucker; president Dean McMillan and Patton, who holds the torch. The Ashe County club purchased and developed a 26-acre lake and paid for it in six years.

Sfc. James D. Berry of New Bern finds this cord and leather game carrier ideal for mourning doves. He got it in Japan.

Trout Season Extended

(in waters listed below)

During the July, 1959, meeting of the North Carolina Wildlife Resources Commission, the open season on trout (rainbow, brown, brook) was extended from August 31 to September 30 in the following waters, exclusive of tributaries, provided that during this extended open season the creel limit shall be 5 trout per day (in aggregate):

Stream	Section Open
Alleghany County	
Little River	Whitehead Bridge downstream
Brush Creek	Route 21 Bridge downstream
Glade Creek	Route 21 Bridge downstream
Ashe County	
New River, North Fork	Maxwell to Sharp's Mill Dam
Avery County	
Linville River	Linville Co. property to Refuge line
North Toe River	Plumtree Dam to Newland Bridge
Buncombe County	
Ivy River	Barnardsville Dam to Hwy. 19 and 23
Burke County	
Linville River	First bridge to second bridge below Lake James
Caldwell County	
Yadkin River	Finley P. O. to Buffalo Creek
Cherokee County	
Valley River	Andrews to Hiwassee Lake
Graham County	
Big Santeetlah Creek	Refuge Line to Santeetlah Lake
Big Snowbird Creek	Little Snowbird Creek to Santeetlah Lake
Haywood County	
Jonathan Creek	Maggie P. O. to Pigeon River
W. Fork Pigeon River	Lake Logan Dam to Woodrow
Henderson County	
Green River	Polk Co. Line to Lake Summit
South Mills River	Refuge Line to N. Mills River
North Mills River	Refuge Line to S. Mills River
Jackson County	
Scott Creek	Dark Ridge Creek to Tuckaseigee River
Chatooga River	Boundary at Govt. land to S. C. Line
Macon County	
Cullasaja River	Cullasaja Falls to Little Tennessee River
McDowell County	
Armstrong Creek	Roses Creek to Catawba River
Mitchell County	
Cane Creek	Clarrissa to Toe River
Roses Creek	Entire stream
Rutherford, Henderson Counties	
Rocky Broad River	Buncombe Co. Line to Lake Lure
Stokes County	
Dan River	Virginia line to one mile below Union Mill Dam
Surry County	
Fisher River and Ramey Creek	Low Gap Dam to Blevins Store
Swain, Macon, Clay Counties	
Nantahala River	Refuge Line to Fontana Lake
Watauga County	
Watauga River	Foscoe to Tennessee Line
Middle Fork	Lake Chetola to Boone Dam
Wilkes County	
Middle Prong, Roaring River	Loveless Creek to Yadkin River
Transylvania County	
Davidson River	Refuge Line to Ecusta Water intake
French Broad River	The Forks to Brevard
Horsepasture River	Sapphire Lake to S. C. Line
North Fork, French Broad River	Balsam Grove to French Broad River
Toxaway River	Route 64 to S. C. Line
Whitewater River	Route 107 to S. C. Line
Yancey County	
Cane River	Upper Falls to Bowlens Creek

Hatchery Fish

DEAR SIRS: The local Louisiana Wildlife and Fisheries Commission referred me to you for information concerning stocking of fish and the raising and propagation of fish later.

I have a pond about one acre in size near Lake Toxaway which is fed by a creek and the water is impounded behind a 12-foot dam with an overflow screened pipe.

I am particularly interested in knowing what assistance might be available from the State Fish Hatchery for stocking the pond, kinds of fish, time of year for stocking, etc., also, if any descriptive pamphlets are available giving information about fertilizing the pond, supplementing natural food through artificial lighting at night, etc., will all be very much appreciated. F. E. JOHNSON, NEW ORLEANS, LA.

All fish produced by our state hatcheries go to stocking public waters. If you will contact the District Soil Conservationist in the county in which your pond is located he will help you obtain suitable fish free of charge from the federal government. Further, he can supply you with federal bulletins on fish pond management.

Farm Pond Productive

DEAR SIRS: Here's proof that a farm pond can be mighty productive. Richard Abernathy's four-acre pond near Spring Hope was stocked with bass and bluegills in 1957. When fishing was opened for two weeks this year, eight fishermen took two fish less than their limit on the first day. The best catches were made by Bill Richardson and Gleeman Moss, whose sixteen bass averaged between a pound-and-a-quarter and a pound-and-a-half. The pond has been fertilized and the pond shore has been kept clean; no cattle have been allowed to muddy the water. This shows that with proper management farm ponds can be one profitable way of using one's land. AL BOONE, SPRING HOPE.

Fisheries Profession

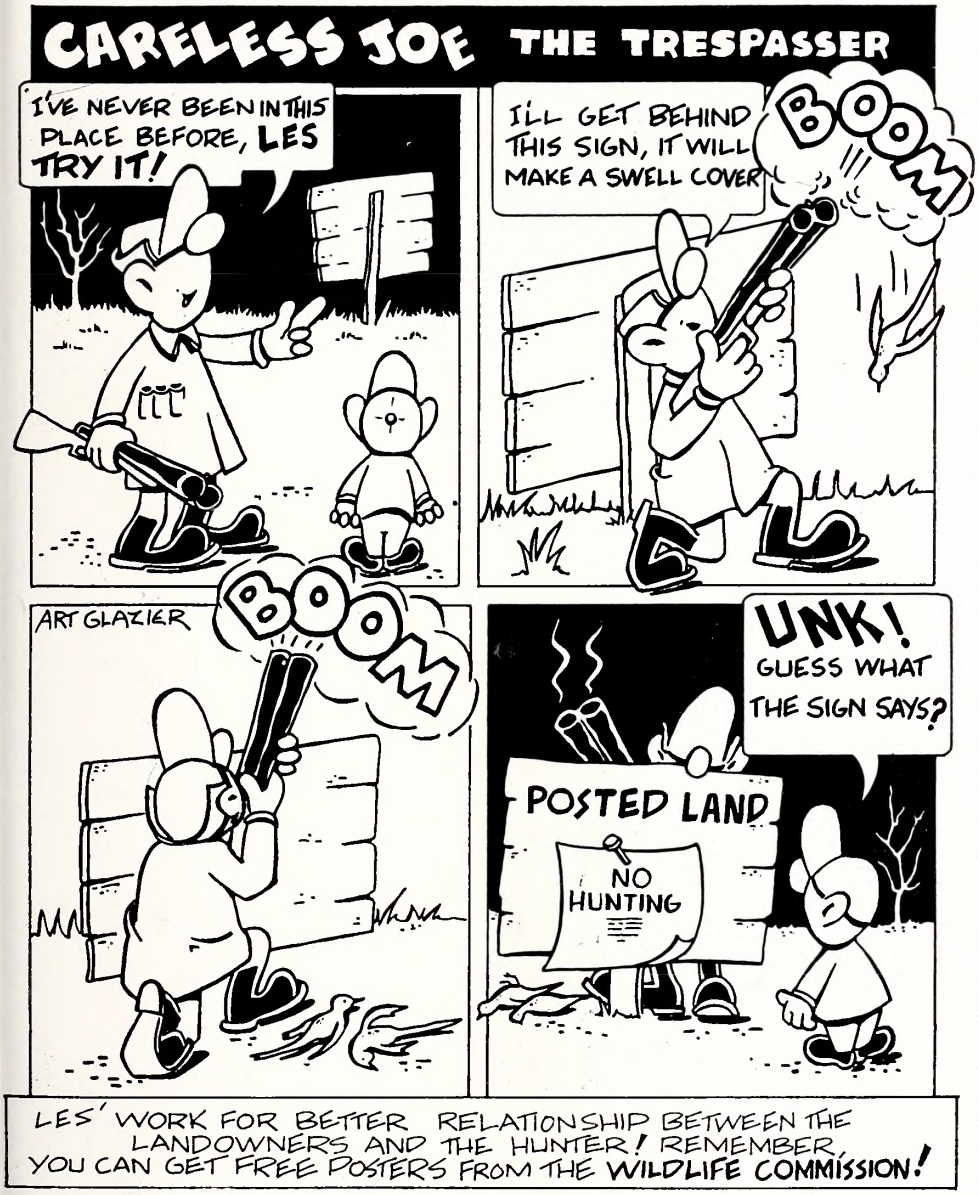
The first publication specifically covering employment in the fisheries field is "Fisheries as a Profession," now available from the American Fisheries Society, Box 429, McLean, Virginia, the Wildlife Management Institute reports. No charge is made for 10 or less copies.

DEAR SIRS: I am wondering what happens to the originals of the water-color paintings used for reproductions for the front covers of your magazine. Is it possible for a person to buy one of the originals from the artist or the magazine?

I am particularly interested in the water-color painting of the catbird on the cover of the July, 1959 issue. If possible, I should like to purchase the original of this.

I will appreciate any information that you may send me concerning this picture. ADDISON R. BARKER, JR. THOMASVILLE

We receive many inquiries such as this one regarding original cover art. The original paintings



become the property of the State and may be disposed of only by sale to the highest bidder. We prefer to keep the originals for exhibit and other educational purposes. We are sure, however, that our contributing artists would be glad to offer similar paintings for direct sale, and will be glad to furnish their names and addresses. Richard Parks lives at 2303 Pembrook Place, Atlanta 5, Georgia.

Kids Fishing Derbies— Breeding Place For What?

Every summer over the length and breadth of the land sportsmen's clubs will be cashing in on wonderful publicity, merchants will be patted on the back for promoting wholesome activities for our youth, and the youth itself will be getting in some fine fishing. Summer is the season for kids' fishing derbies.

A public official in attendance will expound on the value of putting a fishing pole in the hands of a youngster and keeping him out of trouble in his idle time. With this theory we have no quarrel; in fact, are in hearty accord.

But do the kids' fishing derbies teach anything constructive? Do they teach sportsmanship? Do they teach conservation? Or do they teach aggressiveness, greed, selfishness and the worst possible kind of sportsmanship?

What is the basic principle of a children's derby? Catch the most fish or the biggest fish—tip the judge's scale the most and you win. You be the "firstest with the mostest" and you are praised, photographed and made to feel like the hero. Skill is mentioned but certainly not taught. Too often it is the larger child who plunks himself in the most likely place, crowding the smaller and less aggressive angler aside, that wins.

What does the child gain from the contest aside from a few prizes? He gains the idea that fishing is a contest. To win you catch the largest and most. Only results are important. If you didn't catch any fish you are weak. The tears in the eyes of the youngster who couldn't catch a fish are mute testimony to this principle. Any kind of trickery is okay as long as you catch fish.

Most organizations that sponsor derbies actually think they are doing the kids a big favor, but are they? What kind of anglers are we going to produce for future years as a result of kids' fishing derbies?

Perhaps we should take a second look. Are we getting the results we want? Are kids' fishing derbies really promoting sportsmanship and conservation?

—Arizona Wildlife News

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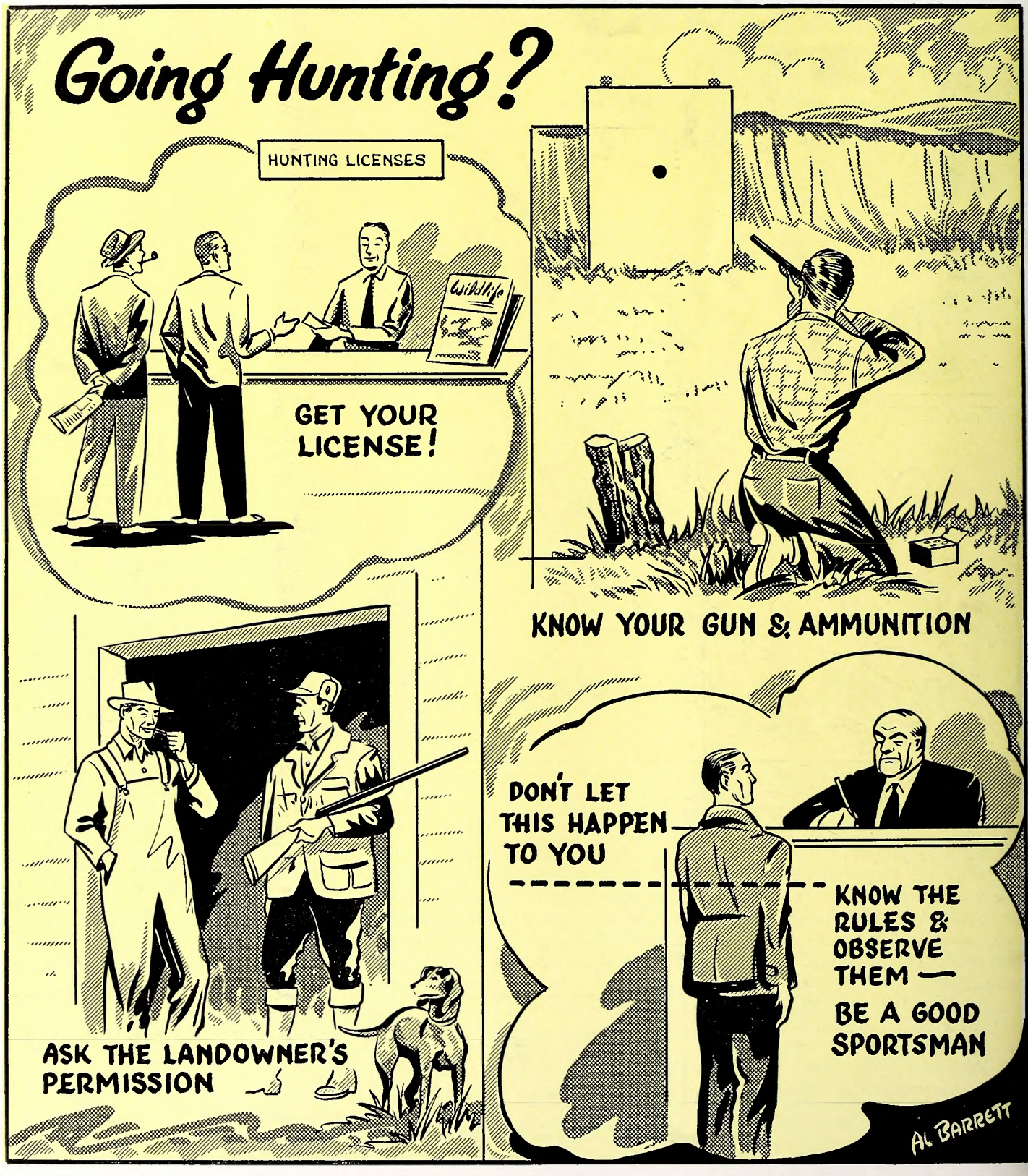

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Wildlife

OCTOBER-1959

TEN CENTS

in north carolina

Photo By Jack Dermid

October Silhouette

The squirrel season opens October 1 in many western and northern counties, and sunrise will find an army of hunters in the autumn woods to match their wits with the State's most popular target. Perhaps a dozing nimrod will awaken to see his quarry watching him from the side of a tree. He blinks the sleep from his eyes and the silhouette is gone. See the "1959-60 Hunting and Trapping Regulations" for complete squirrel season details.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

The rabbit amid the leaves of sugar maple is not an ordinary bunny, but a marsh rabbit, an evasive inhabitant of our coastal marshes, swamps, and river bottomlands. Compared to the cottontail, he has shorter ears and a darker coat, but his most distinctive feature is his tail—bluish-gray below instead of white.

Much to the dismay of hunter and hound, the marsh rabbit does not dash away over hill and dale like the cottontail. He sneaks leisurely through the tangles of his home, seldom showing himself, frequently backtracking or taking to water to the utter confusion of the dogs. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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The HUNTING OUTLOOK for 1959-1960

By Clyde P. Patton

Illustrations by John W. Taylor, Jr.

NORTH Carolina's 1959-1960 hunting season opened with a few scattered shots down along the coastal marshes on September 5 when the season on rails, sora, and gallinules got under way. There were only "a few scattered shots" because although there is an abundant supply of marsh hens, few Tarheel nimrods go out after them. Marsh hen shooting dates run from September 5 through November 13, with fifteen birds daily and thirty in possession. These limits include rails, sora, and gallinules singly or in the aggregate.

Doves

Another good crop of doves in the Atlantic flyway makes possible another two-segment dove season. The first season runs from September 12 to October 10, and the second segment from December 11 to January 15. Shooting hours are from noon to sunset with a bag limit of ten birds daily with twenty in possession after the first day of each season. Best hunting may be expected in the Piedmont during the early season and in the Coastal Plains during the later season.

Woodcock

The woodcock season opens Thanksgiving Day, November 26, and runs through January 4 with a daily bag of four birds and eight in possession. This is essentially the same season and bag limit as last year, and apparently there has been no major change in woodcock populations.

Waterfowl

Tarheel hunters face reduced seasons and bag limits on waterfowl following poor nesting success this summer. Geese and brant may be taken from sunrise to sunset November 10-January 8, with bag and possession limit of two and four geese, six and six brant. Ducks and coots may be hunted from November 20 to January 8, with opening time at noon on November 20 and from sunrise to sunset thereafter. Bag and possession for ducks are three and six—a severe reduction from previous years. Wilson's snipe may be hunted sunrise to sunset November 26 to December 25, with a daily bag and possession limit of eight birds. Restrictions have

again been set on canvasbacks, redheads, ruddy ducks, wood ducks and hooded mergansers.

Deer

Reports of depredations by deer to agriculture in several sections would indicate an increase in deer populations in these areas, and the general deer hunting outlook is good. The taking of antlerless deer will be permitted in several sections of the state, especially where deer herds have grown beyond the carrying capacity of their habitat. Antlerless deer hunts may be held only after public hearings are held to determine the desires of people living in areas where deer have become overabundant.

Bear

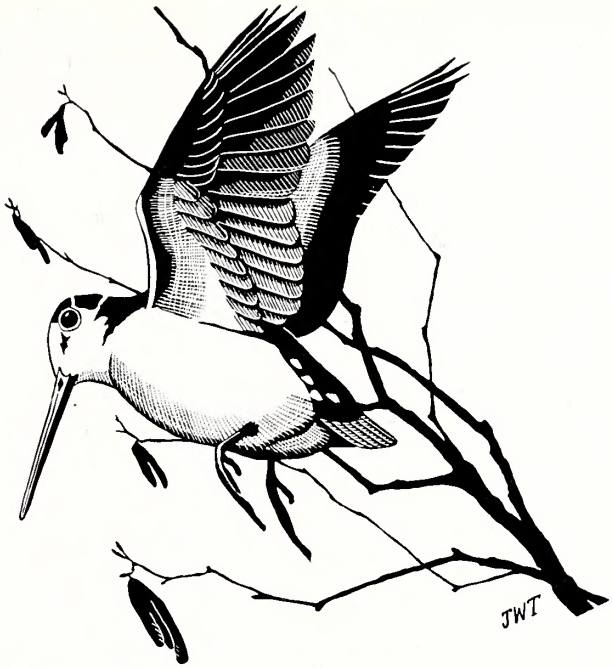
No apparent change has been observed in bear populations, and this is reflected in a bear hunting season similar to last year's season. Bears are found in the mountain and coastal sections of the state.

Wild Boar

Wild boar are found in huntable numbers only in Clay, Cherokee, and Graham counties. Boar populations have held fairly constant over the years, and most boar hunting will be done on a managed or organized basis. Crop depredations by the wild boar in Graham County indicate a spread from traditional breeding grounds.

Raccoon and Opossum

Populations of raccoon and opossum seem about



the same as last year, with some increases in eastern and western sections.

Squirrels

There will be good squirrel hunting in most parts of the state. The mast crop ranges from fair to abundant, and this distribution of food will be reflected in the relative abundance of squirrels.

Rabbits

Reports from most parts of the state indicate an excellent crop of rabbits. There will, of course, be sections where there are local rabbit shortages, but the general outlook may be described as being good.

Quail

Ideal weather conditions during the quail nesting season, plus plenty of food and cover, seem to have combined to produce an excellent crop of quail this year. Heavy rains in July did little apparent damage except to late broods of small birds. Excellent quail hunting may be expected in most sections, with the usual local exceptions.

Wild Turkey

As in years past, the wild turkey has held its own population-wise, and fair to good turkey hunting may be expected throughout the range.

Ruffed Grouse

A favorable spring breeding season in the mountains will be reflected in excellent ruffed grouse populations. Summer reports indicate some of the largest broods of young birds observed in years. As in the case of marsh hens, the supply of grouse will far exceed the demand by hunters.

General

Except for a decline in duck populations, the general outlook for hunting in the Tarheel State is bright. Nature has combined with a progressive and successful wildlife management program to make North Carolina one of the top hunting states in the Nation.

Salt Marsh Bonus

by Dwight Rivers
Game Biologist, District 1

If you are looking for new hunting adventures, aim your scattergun at the evasive marsh hen which abounds in Tarheel salt marshes.

Photos by Jack Dermid

IT was back in the 1930's when I was first introduced to marsh hen hunting. Hank and I were on the coast, moving from place to place and living in a home-made trailer, when we found we had a day of leisure on our hands. Supplies were low so a trip to the closest country store was indicated.

Now a country store is good for several things besides the obvious—one of which is to swap information and yarns with those of the local gentry who might have a little time on their hands. With intentions of taking full advantage of this pleasant pastime, we ordered our supplies along with a big bottle of orange and sat down by the salt pork barrel.

Sure enough, a pair of likely-looking conversationalists came in shortly, nodded, and asked for a couple of boxes of shells. They specified number eights and tens. They nodded again on the way out. This happened a couple of times.

I looked at Hank and said, "There aren't enough doves around here for everybody to be buying shells and taking off hunting. Squirrel season is in too, but who ever heard of anybody buying small shot like that to shoot squirrels?"

"Don't know," Hank replied, "but I'll bet the storekeeper does." The proprietor came out from the back and we put the question to him.

"Why, marsh hens, naturally. Highest tide we've had since the season came in. Be about two hours before high tide."

"How do you go about hunting them?" Hank asked.

"A boat, a pole and a gun are all you need and you can hunt right over there across the creek," said our informant. He pointed to a seemingly endless marsh about a half mile across the creek.

It turned out that he had an old double-barreled shotgun he would loan us and boats for hire. After buying a box of shells apiece, following our host's recommendation of number eights, we were in business—almost. All we needed was a little information, and that was soon coming. "Just pole your boat through the marsh over yonder and take turns shooting. Be sure you be out of the marsh by four o'clock or you'll be there until the next high tide. There won't be enough water in that marsh to float the boat after the tide goes out."

"My boy down there at the dock will tow you over and pick you up when you come out. Just holler." With these instructions and a tow across the creek, we started on our first marsh hen hunt.

If you want to be scientific, we were hunting *Rallus longirostris*—the clapper rail. In North Carolina the clapper rail is more commonly called the marsh hen. The marsh hen belongs to the family *Rallidae,* represented in North America by the rails, coots, and gallinules.

The marsh hen is a medium-sized bird weighing from eight to fourteen ounces, with a wingspread of about 20 inches. His back is grayish-brown and his breast is gray to cinnamon. Distinct bands of white and dark brown adorn his sides. His physique can be described as long and lean. He is built for wading and for slipping through the heavy vegetation of the marsh. He is long-legged, has a slim body and a slim neck. His bill is also long and slender, admirably suited for garnering the small snails and crabs which are his chief foods.

In the Americas the marsh hen is found from Connecticut to Brazil wherever saltwater marshes are found. In North Carolina more salt marshes

are found along the southern portion of the coast—the sounds to the north are relatively low in salt content. Trespassing signs are seldom seen in the salt marshes—a welcome change for most hunters.

Without trying to describe all the ways that marsh hens can be hunted, a description of the way they are generally hunted should give the novice an idea of how to proceed. A tidal marsh is made up of a heavy growth of vegetation (chiefly cordgrass in North Carolina), growing in deep black muck. The salt marshes are found along the numerous tidal creeks, channels, guts, and sloughs along the coast. Along most of these creeks and channels dikes have built up from six inches to more than a foot high. During high tides the birds move to these elevated dikes—from which they may be easily flushed.

Generally two men hunt from a boat and take turns shooting and poling. Killed birds should be marked down carefully and picked up immediately as they can be extremely hard to find in the dense cordgrass. Sometimes the downed birds can be picked up from the boat, but at other times it is necessary to wade after them. Tennis shoes give good protection to the feet while wading, and they are easier to handle if deep water is accidently encountered. During the early part of the season, wading boots can be uncomfortably hot.

Best Rail Tides in October

Date	High Tide*	Height
Oct. 2	7:18 a.m.	5.3 ft.
Oct. 3	8:06 a.m.	5.5 ft.
Oct. 4	8:55 a.m.	5.6 ft.
Oct. 6	10:42 a.m.	5.5 ft.
Oct. 7	11:42 a.m.	5.3 ft.
Oct. 8	12:43 p.m.	5.1 ft.
Oct. 9	1:50 p.m.	5.0 ft.
Oct. 15	6:43 a.m.	5.1 ft.
Oct. 16	7:24 a.m.	5.1 ft.
Oct. 17	8:03 a.m.	5.1 ft.
Oct. 18	8:39 a.m.	5.0 ft.

***Time given is for Southport. For Beaufort-Morehead City, add 13 minutes to the above times.**

The hunting season for mash hens is set by Federal regulations, but generally extends through most of September, all of October, and early November. High tides are necessary for mash hen hunting. The extreme high tides put enough water in the marshes so that a boat may be taken through the marsh vegetation, and the flooding waters congregate the birds in the higher marshes. Check the tide schedules before planning a marsh hen hunt.

Salt water can be extremely hard on a good gun, so if you have an old weapon leave your new automatic at home. Shells should be loaded with number eights or skeet loads. Guns should be open-bored and the size of the gun is up to the hunter. A 14- or 16-foot skiff is large enough for two men and easy to manuever. A paddle and a pole are necessary for locomotion. And don't forget the wading shoes.

We soon learned on our first hunt that there is a knack to poling a boat. The first few minutes were spent in solving our navigational problems. While we were involved with this, the first bird flushed.

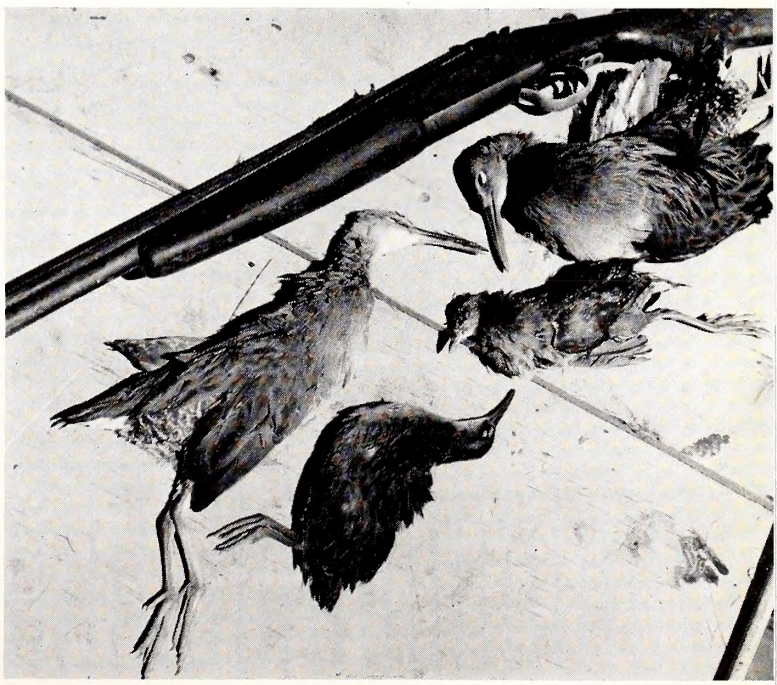
I slipped the safety off and looked down the barrel at him. He wasn't flying fast so I hesitated an instant to let him get a little distance. Then I took the gun down and slipped the safety back on. The bird had disappeared!

He had been flying slow and straight away over the grass when he seemed to drop straight down into the grass. He wasn't over thirty yards away. "Lesson number one, Hank," I muttered, "Shoot them when they get up or they'll get down again."

After that incident we both bagged some birds, enjoyed the vast expanse of marsh, watching the gulls, herons, crows, bitterns and marsh hawks that are to be seen in a marsh. We barely got out before the water left the marsh. A few hails across the creek and we heard a boat start toward us—ending a very enjoyable evening's hunt.

The marshes are big and lonesome. Just to be in them gives you a feeling of smallness, an indebtedness to the Creator who made such an expanse of sky, water, and aquatic wilderness. The lone herons and egrets, standing like carved statues, and the low-flying marsh hawks, the gulls with their plaintive cries, an occasional bittern with his bill pointed straight up trying to imitate a reed—these are ample reasons to love the marsh. Marsh hen hunting is an added bonus.

Although the marsh hen or clapper rail is the most abundant target, bags in the salt marsh are often varied. This one contains (left to right) clapper, Virginia, sora, and king rails.



CROSSROADS To Good Hunting

By John C. Oberheu

Photo by Jim Lee

BEFORE the coming of the white man to this country, virgin forests and fertile prairies teemed with various forms of wild game, each living in dynamic balance established by centuries of virtually no disturbance. As the number of white settlers grew, more land was cleared and put into cultivation. The altered vegetative pattern had a profound effect on distribution and abundance of the various species of wildlife. The altered pattern of land use favored some species of game and placed others at a disadvantage. Rabbits and quail—later to be called "farm game"—found the changes to their liking and began to increase. Other species such as bear, grouse, and wild turkey found their favored haunts reduced or eliminated by the continuous clearing of forests.

Once this change had been completed a different type of wildlife and a new type of hunting became established. Early farming methods were ideal for the production of farm game. Fence rows, rail fences, fallowing, burning, poor weed control and small field farming all made desirable habitat, and farm game populations flourished.

With the gradual development of modern farming methods, farm game habitat went through a new series of changes. Larger fields, clean farming, more effective weed control, wire fences, insecticides, herbicides, fall plowing, and in general a gradual elimination of desirable food and cover resulted, which in turn caused alarming decreases in wild game. As this situation was developing the number of hunters was growing by leaps and bounds. Expanding cities and residential areas reduced the total amount of habitat. Faster transportation and easier accessibility allowed hunters more time and a wider range for hunting. Our ever-expanding system of highways took its toll of wild game, and better guns and more effective ammunition boosted the hunters' opportunities. The net result of increased hunting and decreased habitat was a decrease in game.

This whole series of changes has brought us where we are today, at the crossroads to good hunting. We have only two choices: either we attempt to meet the situation in which we find ourselves, or, we allow present conditions to continue to destroy our hunting sport. The course we take is ours to choose, but let us choose carefully because the effect of our choice will affect all generations that follow us. If we choose to meet the challenge, stricter game laws and more stringent law enforcement cannot alone remedy the situation. To obtain results we must tackle the source of the problem.

To find the source of the trouble let's look at a basic equation that every wildlife technician has learned: The *population* of a wildlife species on a given area is equal to the *biotic potential* of the species minus the *environmental resistance* of the area being considered. More simply stated this means that the number of quail and rabbits that survive the winter to enter a new breeding season is determined by the number of young that the previous year's breeding population was capable of producing, less the number of individuals which were lost to conditions in the environment such as bad weather, predators, disease, and starvation. Since the number of young which the breeding population is capable of producing (biotic potential) is biologically fixed, the only way in which the total population of a species can be increased is by reducing the toll of environmental resistance in order that more individuals can survive the winter to enter the breeding season.

It is easy to see that the environmental resistance would not be the same on all types of land and cover. Obviously, good habitat has larger populations of wild game because it has less environmental resistance. The various components of environmental resistance are called *limiting factors*. Some of the more common are: insufficient food, wrong types of food, inadequate escape cover, lack of nesting cover, absence of water, and predators.

Farm game is at the crossroads; we must either find answers to the problems brought on by increasing inroads of civilization or face a decline in hunting.

The number and severity of various limiting factors determine the "carrying capacity" of a particular habitat. Carrying capacity may be defined as the maximum number of individuals that can be supported on an area with existing food and cover conditions. The population of a species cannot surpass carrying capacity of the land any more than the size of a load can exceed the carrying capacity of a farm trailer. If food is the limiting factor, the surplus animals will starve; if cover is the factor, the surplus animals will be lost to predation or storms; if good roosting or nesting cover is lacking predators may be expected to take a toll because of the inadequate protection.

Though game populations cannot rise above the existing carrying capacity of the land the wildlife technician knows that when the carrying capacity of an area is low it is very likely because of one or more limiting factors. His job is to find and remedy these limiting factors.

The most common limiting factors are inadequate food or cover. Lack of sufficient good quality foods may result not only in loss from starvation or migration to another area, but dietary deficiencies may cause loss to disease or ability to survive extremes in weather conditions. Improper cover may not include desirable nesting or roosting sites, may not provide necessary escape cover from natural enemies, or may not provide adequate protection from the elements. Where food and cover is adequate the effects of predators, disease, weather extremes and other limiting factors are minimized.

When a game manager is called upon to improve game production on an area, he investigates the area with an eye toward finding the most important limiting factors. Common limiting factors for small game are large open fields with no breaks of escape cover, clean fences with no place for production of natural foods or nesting sites, the harvested corn fields that have been plowed under in the fall in early preparation for spring planting, the clean cut ditch banks which could offer breaks in open fields, the woodlot which is being grazed by cattle, the "managed" woodlands which have had all mast-producing and den trees removed, the infertile fallow field that has been allowed to grow up in a pure stand of broomsedge and saplings, or the farm pets roaming the fields.

As he inventories the area to find limiting factors he is also looking for ways to remedy the situations that he finds. On a map which he prepares, he indicates strategic locations for the establishment of cover. He also spots potential sites for food plantings—a woodland edge, a woodland clearing, an eroded hillside, an idle ditchbank, or an odd field corner. In a written plan for managing the area he may recommend leaving strips of unharvested grains at certain field edges, early spring plowing in preference to fall plowing, shrubbing of alternate sides of ditch banks, disking strips across idle land, erecting squirrel boxes in a woodlot, building brushpiles for escape cover, burning a field of brush to improve natural food production, or fencing off stone piles, ditchbanks and rough areas where thickets can grow.

The Wildlife Resources Commission has available a trained staff of wildlife technicians who have specialized in preparation of farm game management programs. Any farmer, sportsman or landowner who is interested in building and maintaining good hunting may obtain the assistance of one of these specialists in developing long-term game management plans. Those who are interested in such assistance should write to the Wildlife Resources Commission, Box 2919, Raleigh, or contact the wildlife biologist in your district.

When we who are living today can realize the importance of conservation and wise use of our wildlife resource to the perpetuation of our hunting heritage, we will not hesitate to assume the responsibility of making sure that there will always be a place for wild game to live, reproduce, and provide for us the sport of hunting. Without hesitation we will choose the right road, the road to good hunting through habitat restoration.

DAVIDSON *Shows the Way*

by Lunette Barber

CONSERVATION education doesn't just happen, it is the result of planning and working together. Teachers, supervisors, students, resource agencies—all must plan and work together. Take a look at Davidson County, where the county elementary schools, working with the Soil Conservation Service, have demonstrated what can be done through planning and working together.

Davidson County is in the heart of the Piedmont, with concentrated agriculture, dairying, textile manufacture and furniture-making combined to give employment and prosperity to the thickly populated area. The reasons for this prosperity are varied, but all go back to the existence of Davidson's natural resources—soil, water, forests, and wildlife.

Many of Davidson County's citizens are concerned with the conservation of these natural resources, for they recognize their benefit to present and future generations. Conservation education in the county has been outstanding for several years. In the county elementary schools, Mrs. Lois Reich, supervisor, has worked closely with the Soil Conservation Service to carry out a program among the teachers and through them the students. Working with her in this important phase of conservation education has been Joe Adair of the Soil Conservation Service.

In the spring of 1959 a representative of the North Carolina Wildlife Resources Commission conducted a workshop for sixth grade teachers, and here the importance of teaching the interrelationship of soil, water, forests and wildlife was stressed. The workshop came at the beginning of the year's conservation study. Twenty-eight sixth grade classes were taught a unit on soil and water conservation. Following these units, the Soil Conservation District supervisors sponsored an essay contest in all the sixth grades. Subject for the essay contest was "How We Can Make Better Use of Davidson County Soil." The $25 first prize was won by Joe Craver of Arcadia School's sixth grade class.

Perhaps there are many teachers reading this who would like to share such a teaching experience with their students. It may not be possible to attend a workshop where much relevant material can be obtained. So, the next best thing is to have a good class room field guide. The following publication, the same as used in Davidson County, may be obtained from your local Soil Conservation Service office or from the Superintendent of Documents, Washington 25, D. C.; "Teaching Soil and Water Conservation," U.S.D.A.; S.C.S., PA -341.

In this aid to busy teachers are practical suggestions to help carry out activities and observations in the classroom and out-of-doors. Each activity is presented in two parts: a how to-do-it part and an interpretation.

Two other bulletins were furnished by the local chapter of the Soil Conservation Society of America —"The Story of the Land," and "The Wonders of Water." They are published by the Soil Conservation Society of America, 838 Fifth Avenue, Des Moines 14, Iowa.

Conservation and wise use of soil and water on farmlands and woodlots are the means of keeping our land productive, our people healthy, and our Nation strong and beautiful.

The pictures tell the story. Youth education is one of the keys to conservation, and public schools have much of the responsibility. The Davidson County elementary schools have shown the way—others could follow their example.

BELOW: Churchland sixth graders look at a multiflora rose hedge on the D. W. Wilson farm during a field trip. AT RIGHT, Pilot School students examine a field of small grains during a visit to the farm of their teacher, M. W. Holmes.

Photos courtesy Soil Conservation Service

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Patton Elected President of International Association

At its annual meeting at Clearwater, Florida, the International Association of Game, Fish and Conservation Commissioners elected Clyde P. Patton, Executive Director of the Wildlife Resources Commission, as President. Patton has been active in the Association for many years, serving on numerous committees and helping to organize the National Waterfowl Council. Patton succeeds A. D. Aldrich, Director of the Florida Game and Fresh Water Fish Commission. The International Association is considered one of the most influential conservation organizations in existence.

Public Hearing Dates Set for 1960 Fishing Regulations

In keeping with long-standing policy, the Wildlife Resources Commission will hold a series of three public hearings to give consideration to the 1960 inland fishing regulations. The meetings, where fresh water anglers will be given an opportunity to express their desires regarding the new regulations, will be held:

October 5, 1959, Washington, N. C., Courthouse 7:30 p.m.
October 6, 1959, Salisbury, N. C., Courthouse, 7:30 p.m.
October 7, 1959, Asheville, N. C., Courthouse, 7:30 p.m.

Hunters Urged to Observe Safety, Sportsmanship Rules

With the opening of the hunting seasons for several major species during October, the Wildlife Resources cautions hunters to obey the rules of hunting safety and sportsmanship. There were a large number of fatalities and injuries last year, and an increase in the number of arrests for hunting law violations. The Commission pointed out three cardinal rules for hunters: 1) Treat every gun with the respect that is due a loaded gun, 2) Know and observe the laws and regulations, 3) obtain permission before hunting on the land of others.

Boat Safety Theme of Fair Exhibit

Boating safety will be the theme of this year's wildlife exhibit at the N. C. State Fair October 13-17. Tentative plans call for the exhibit to be set up in the Fairgrounds Coliseum near the north entrance. The exhibit will show various motorboat safety devices required by law after January 1, 1960 and other important information, and will be available for showing at boat and sports shows throughout the state during the coming season.

Target Pheasant

Photo Feature
by Jack Dermid

IT is no longer necessary for the Tarheel nimrod to travel north of the Mason-Dixon Line to enjoy a day of ring-necked pheasant hunting. He can find the same thrills within a few miles of Raleigh or other population centers on any one of a dozen controlled shooting preserves.

The controlled or commercial shooting preserve is relatively new to the North Carolina hunting scene. It is a private business undertaking whereby the operator raises pheasants, or other species, releases them on his lands, and then sells hunting permits. The general price for a pheasant hunt is $25 per person which entitles the hunter to bag four birds (two cocks and two hens). More birds may be taken for an additional fee. Trained dogs are furnished unless hunters prefer to use their own.

The commercial aspect of the operation ends as soon as the hunters are in the field. The birds are not released until they are fully grown and strong of wing, and the pheasant, whether pen-raised or not, is inherently wild and knows all the tricks when it comes to saving his own skin. He hides, skulks, runs at a gallop through the brush, or suddenly bursts from cover with a flurry of wings and a raucous call that can unnerve the most experienced hunter.

Many hunters say that shooting pheasants on a preserve is the same as shooting them in the wild. Besides, they know birds are present and they know they will not return home empty-handed. The shooting preserve season on pheasants is long, October 1 until March 31, and there is no bag limit. A hunting license is required, however.

The accompanying photographs were taken at River Bend Ranch near Vass during State College Extension Division's Game Hunting Short Course, which will be held this year December 6-11. The hunters are Mr. and Mrs. Richard A. Wolters of New York and Fred Missildine (wearing dark clothes), Winchester Arms representative and short course instructor.

Tarheel Shooting Preserves

Besides pheasants, some controlled shooting preserves offer chukar partridges, bobwhite quail, coturnix quail, and mallards. Here is a list of the controlled shooting preserves in North Carolina: Bennett and Darden Game Farm, Box 9402, Greensboro; Chatham Game Bird Farm and Shooting Preserve, Box 83, Siler City; Cock 'N Bull Club, Box 1111, High Point; Creek Side Shooting Preserve, Salemburg; Gunsmoke Acres Shooting Preserve, Box 524, Goldsboro; Jones Brothers Game Bird Farm, Route 6, Reidsville; Parks and Wright Shooting Preserve, Box 717, Asheboro; Pitt Game Bird Farm, 108 Ficklen Street, Greenville; Raleigh-Durham Shooting Preserve, Route 6, Raleigh; River Bend Ranch, Route 2, Vass; River Forest Manor, Belhaven; Stonycreek Hunting Preserve, Box 6, Reidsville; Venters Pheasant Hunting Farm, Richlands.

Few birds are more colorful than the male pheasant. Preserve hunting is as easy or as tough as the hunters want to make it.

Pheasants are masters at sneaking away from hunters and dogs, and it takes skilled dogs to corner and hold them for shots.

an exciting moment when a handsome ringneck bursts cover. Despite their large size, pheasants flush and fly surprising speed and are not as easy targets as it may seem.

Every effort is made to keep shooting on preserves as natural as possible. Hunting is done in all types of protective cover.

A cock pheasant is a big mouthful for this pointer. Males weigh 3½ to 4½ pounds, while the smaller hens tip the scales at 2½ to 3½ pounds. The meat is all white and very tasty.

Most preserves conduct hunts on a half-day basis, and the opportunity for each hunter to kill his quota is guaranteed.

WOODMAN Spare That Tree!

By Floyd Arnold
Forester, Wildlife Resources Commission

Are North Carolina landowners overlooking potential sources of revenue through neglect of hardwoods? The Wildlife Commission's forester presents this question and shows that healthy hardwood forests are essential to the future of our forest wildlife species.

Photos by Jack Dermid

Woodman spare that tree!
Touch not a single bough!
In youth it sheltered me,
And I'll protect it now.

WILDLIFE, furniture factories, and a beautiful poem—yes, it is more than coincidence that a vista of North Carolina should include all three. The aged oak of the poem is one of the hardwood group upon which the North Carolina furniture industry depends for raw material, and it is one of the same hardwood group that produces food used by forest wildlife. First, let us clear up a point that is often confusing. In the timber industry, "hardwoods" are all trees with broad leaves whether the wood is hard or soft. Oak, hickory, yellow poplar, gum, cherry, and basswood are examples. In contrast, all trees such as pine, spruce, and balsam are grouped as softwoods.

We are all familiar with the recent emphasis placed upon North Carolina's forest resources, and this invariably conjures pictures of pine forests and planting pine seedlings. So strong has been this emphasis on pine that we have neglected a vital element of the forest, the hardwoods. The importance of hardwoods for wildlife is well known. Oak, yellow poplar, cherry, hickory, gum, tupelo, and many other species produce fruits, nuts, browse, den trees, and shelter thickets. Squirrel, deer, turkey, grouse, rabbit, coon, beaver, quail, and ducks use these trees for food or shelter.

Less well known, but very important, is the role of wildlife in planting the forest. Wild black cherry, which next to walnut is probably the highest-priced wood in North Carolina, depends almost entirely upon wildlife for scattering of seed. Gray squirrels bury acorns and nuts one at a place, and when the call of hunger sends them back to dig up the tasty morsel, the animals forget just where they hid some of their treasure. Thus a new oak, walnut, or hickory is born.

Then why the near exclusive emphasis on management of pine, even to the extent of occasionally planting pine on good hardwood sites? Could this be because pine is worth money and hardwoods have no value? An examination of the facts reveals some startling information.

According to *Tar Heel Timber Markets,* published by the Extension Service, high quality hardwood timber of most species consistently commands a price up to more than two times the price

of pine. The most valuable timber in North Carolina is high quality walnut, followed by cherry, yellow poplar, and a variety of other hardwoods. Pine value on a board foot basis is far below most high quality hardwood timber. Does this mean that pine management has been emphasized because North Carolina can not grow high quality hardwood? Let us examine the history of our forests.

In past years the largest concentration of wood furniture manufacturers in the world located in Piedmont North Carolina because of the wealth of high quality yellow poplar, walnut, cherry, oak, gum, and other fine woods. Ninety-seven percent of all their raw material is hardwood rather than pine. Yet each year 56 percent of the 350,000,000 board feet of lumber used comes from other states (1954 figures).

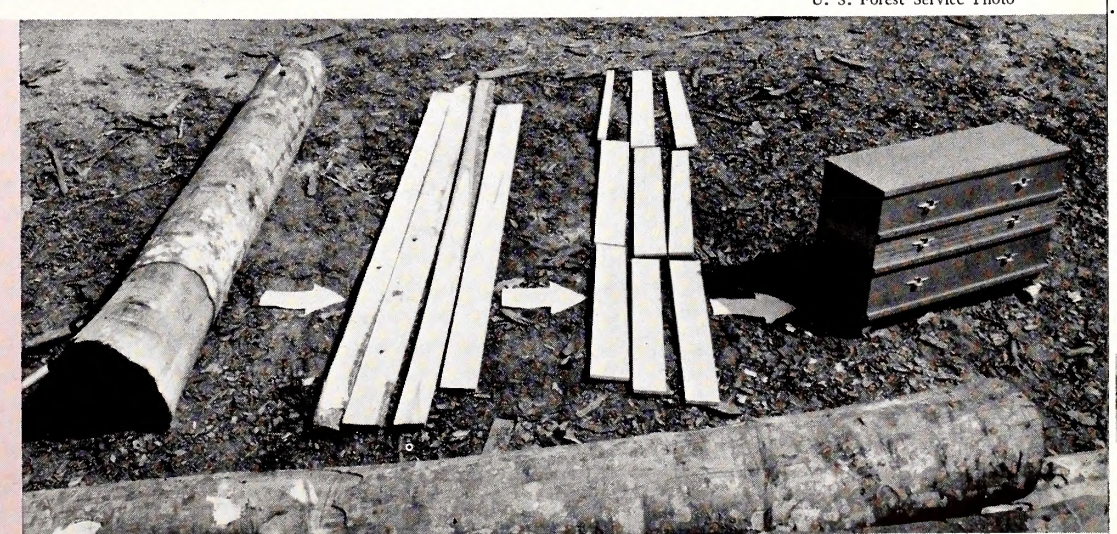
Let us examine some more facts. The state's furniture, plywood, and veneer industry employs 37,547 people with an annual payroll of $99,300,000 (U. S. Department of Commerce, 1954). According to the *Timber Resource Review* by the United States Forest Service, North Carolina's hardwood acreage is increasing. However, 74 percent of all our hardwood is now cull or poor quality trees, and this poor quality material is still increasing. In other words, the supply of high quality hardwood is still getting smaller. And it is the hardwood forest and the mixed pine-hardwood forest that are so valuable for wildlife. The question logically follows as to what has happened to our quality hardwood, that forest so fabulous that it attracted the world's largest concentration of wood furniture manufacturers.

The answer is not too hard to find. Clearing for cultivation destroyed much of the hardwood. The high quality hardwoods suffered most because they occupied the best land. Surprisingly soon, cultivated land suffered from erosion and fertility depletion, was abandoned, and new land was cleared. The abandoned fields usually seeded to pine which thrives best in full sunlight. Hardwoods, which do best in partial shade, then seeded in underneath the pine. As these pine forests were cut, along with the better young hardwood, the new hardwood understory remained, and the full cycle from hardwood to pine and back to hardwood was complete. Many of these soils are so depleted that the new hardwood forest is exceedingly poor, and there is little choice but to grow pine or mixed pine hardwood.

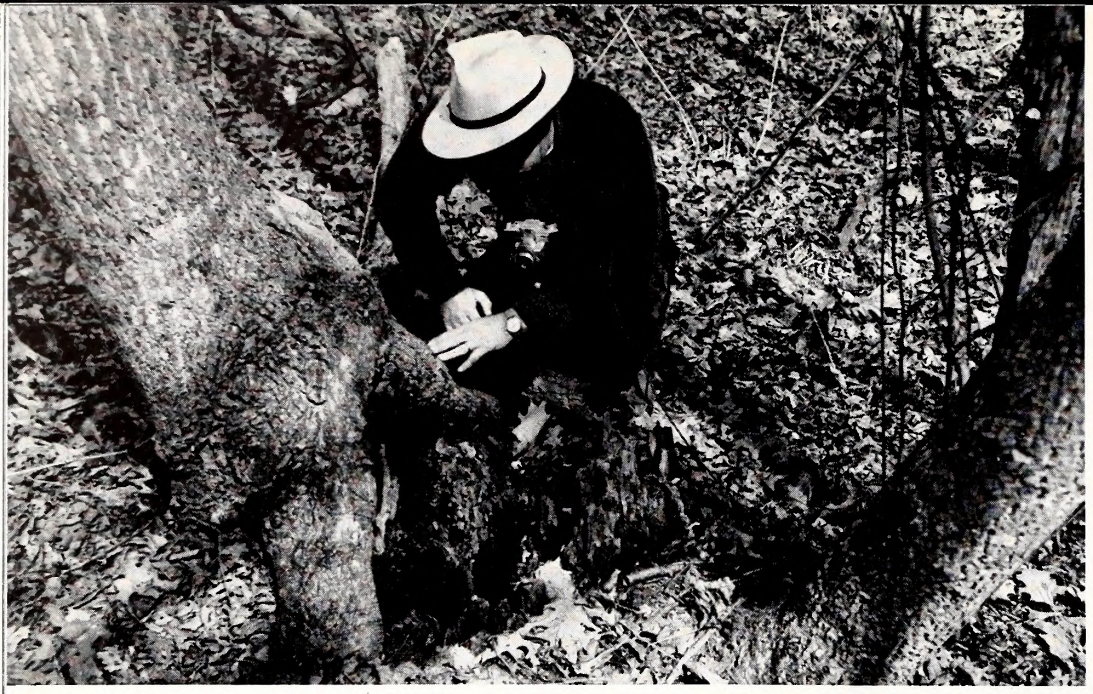
The hardwood and mixed pine-hardwood forest that was never cleared has suffered a similar fate, but by a different route. For nearly 300 years these forests have been picked over, always for the best trees. The popular idea of cutting mature trees and leaving young trees to grow is sound forestry, but this has rarely been done in our hardwood forests. Instead, all good trees—old and young—are cut, and all diseased, rough, crooked, slow growing, and weed trees remain in the woods.

To illustrate what this may mean, let us compare the woods with livestock and field crops. Sup-

U. S. Forest Service Photo



ABOVE: Some of the fruits of the forest provide food for squirrels—who in turn plant nuts for winter storage, sometimes forgetting where they left the nuts. Thus squirrels are responsible for planting many hardwood trees. RIGHT: From hardwood log to rough lumber to dressed furniture stock to finished furniture is illustrated in this picture. The North Carolina furniture industry depends to a large extent on lumber shipped in from other states, despite the fact that native forests could provide most of the wood needed. Yellow poplar, a common Carolina hardwood, is used as core stock for expensive veneer furniture, hidden under veneers of more decorative woods such as walnut.



U. S. Forest Service Photo

LEFT: Rot infected this yellow poplar sprout before it could reach merchantable size. Such trees, doomed to uselessness at an early age, should be culled from the forest to make room for better quality trees. A high percentage of sprout growths result in deformed trees; treatment of stumps will prevent sprout growth. BELOW: Forest fires in hardwood stands are much more serious than in pine forests. Fire scars provide entrance for disease and rot which destroy the value of trees for high quality lumber, so that trees that are not killed may be rendered worthless to the logger—as well as to wildlife depending on vigorous trees for the production of seeds for food.

pose all healthy, vigorous plants were removed from a crop field, or all healthy, fast growing animals were sold from a herd of livestock. The remaining plants and animals would be diseased, deformed, slow growing culls, and the farmer who depended upon them would soon be out of business. This is precisely what has happened in our forests, and 74 percent of our hardwood has "gone out of business." This may be even more serious than it seems, for in the timber industry a cull tree has no market value. The poor quality trees compare with cull livestock; they bring low prices and are undesirable for growing and breeding stock.

We are now at a point where hardwood acreage is increasing, but like the farmer who uses culls for growing and breeding stock, most of our hardwood timber crop is now cull or poor quality. The seriousness of this situation is beyond doubt for the timber industry, but it is also important for wildlife.

The fruits and seeds of these hardwood trees are the mast so important to wild animals. Just as a peach or apple orchard composed of weak, diseased, broken trees produce poor crops of fruit, these decadent forests produce poor crops of mast. It is evident that North Carolina's wildlife and hardwood industries share a vital and mutual concern for the hardwood trees in our forests.

Recent studies by the United States Forest Service have indicated that North Carolina's existing forests can produce at least two or three times the present growth of high quality hardwood. This would be enough to supply all the quality hardwood used by the state's industries. With adequate land and ready markets side by side we may ask, "What can we do about it?"

First, fire is much more deadly in hardwood than in the pine forest. Hardwood stands are always damaged by fire, even if they may not be killed. The trees are usually scarred at the base, providing entrance for decay into the most valuable part of the tree, the butt log. Surprisingly, these are poor den trees for wildlife. A hollow tree that is wide open at the bottom may provide an escape haven for a pursued squirrel or rabbit, but it rarely provides a home in which wildlife can rest and raise young. Large hollows, wide open at either top or bottom are poor places for nests. Fire-scarred trees may produce mast for a time, but as the rot progresses and the tree becomes decadent, mast production falls to a small part of what a healthy tree could produce in the same growing space.

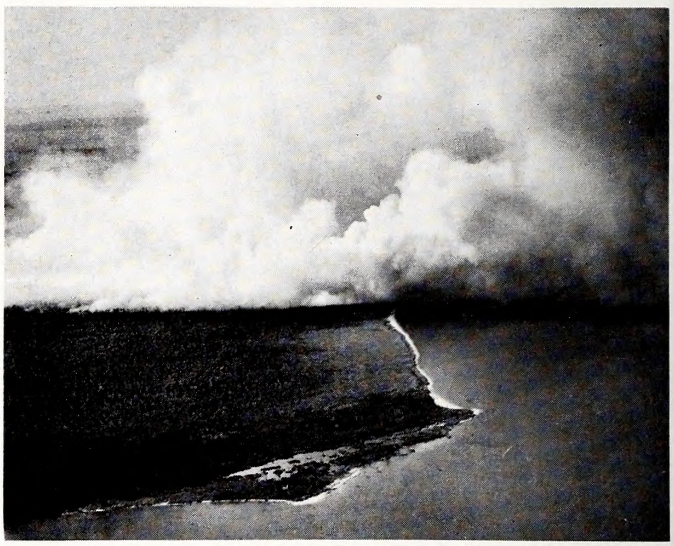


Photo by Rod Amundson

Light, controlled grazing may benefit certain pine stands by helping to control hardwood weed trees. But hardwood forests must also be protected from cattle, since cattle relish these seedlings. The hardwood forest is no place for broadcast fire or grazing.

Second in importance is fitting the crop to the soil. While some kind of hardwood will grow on almost any land, timber of the high quality needed by North Carolina's furniture industry will grow only

on deep, fertile, moist soil. Many of the abandoned fields which once supported fine hardwoods and have since gone through the full cycle of clearing, pine, and back to hardwood, have suffered so much soil deterioration that they need many years of rest and recovery before they can grow good hardwood. Some of the bottoms may grow good hardwood, but the ridges and dry or thin soil slopes are now adapted to pine. Even here some of the best hardwood trees should be encouraged, for hardwood leaf litter is a much better soil builder than pine needles.

The final key to the problem is that hardwood forests require a higher level of management than do pine forests. A stand of pine is typically even aged and principally of one species. However, a good hardwood stand nearly always consists of at least three or four important species, and frequently as many as a dozen different kinds of trees may occur in the same stand. And each species has its own space, moisture, and light requirements for reproduction and growth. Most of our pine is used for structural timber where quality is based on strength, while hardwood used by the furniture, plywood, and veneer industry is graded on appearance. As a result it is the large, straight, clear hardwood that brings high prices. It is also the large, healthy trees that produce abundant mast for wildlife.

To correct our hardwood deficiency for both industry and wildlife, the traditional practice of cutting all good trees and leaving all poor trees must be changed. The tree crop must be managed according to principles similar to those applied to field crops and livestock. Crowded fields and herbs are thinned by removing the culls, slow growers and mature plants or animals, not by removing the healthy growing stock. Just as field crop seed and fine breeding animals are eventually sold, the fine, mature seed trees should be sold *after* they have reproduced their kind, not before.

This emphasis upon quality trees does not mean that wildlife den trees should be eliminated. Adequate den trees should be saved, and this can usually be done with little or no measurable effect upon timber and mast productivity of the forest. However, it does mean that great numbers of cull, weed, and poor quality trees must be deadened or cut to make room for productive growth. Wildlife needs den trees, but dozens of hollow, decadent, or weed trees per acre only take up space that should be growing mast for wildlife and timber for industry.

The underlying causes for the degrading of our hardwood forests are not difficult to understand. First, land was needed for farming. Second, the forests were everywhere and the timber supply seemed inexhaustible. Third, when a need could not be foreseen, or seen only dimly, few people thought of a day when North Carolina would grow less than half of the hardwood it uses.

Today we are in different circumstances. We know the need; we know the method; we have the land; we have the markets. We have little to lose from a change in methods except effort, and there is much to gain. North Carolina's forests can and should provide the timber for the state's hardwood industries and the habitat for abundant wildlife. However, there is no magic formula.

Results must come from improved practices in the woods, and this will take hard work, forbearance, and time. Good forests can be destroyed in a few minutes by fire and in a few days by the axe. It will take many years to rebuild the depleted soils and forests to where they are supplying full benefit to the people of North Carolina.

LEFT: Quality hardwoods bring the highest mill price. BELOW: These vigorous second-growth hardwoods on a farm woodlot project near Mooresville demonstrate the high quality that can be expected in a carefully managed hardwood forest. These healthy trees will produce an abundance of mast.

Photos by State News Bureau (left) and U. S. Forest Service

Around the State

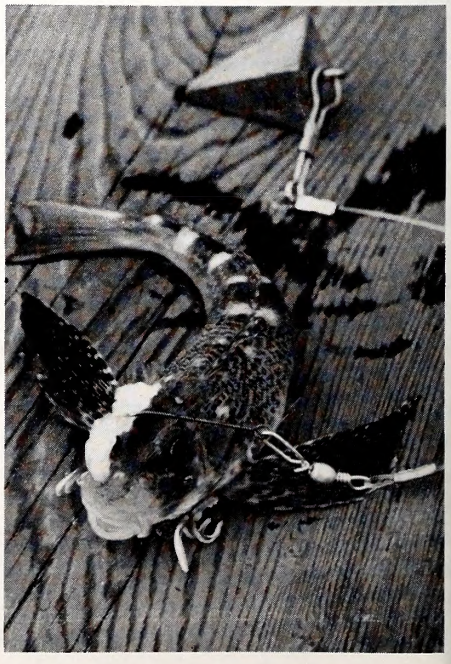
Pictures of people, places, and things in North Carolina

Chuck-will's-widow, with his evening song that sounds like his name, is more often heard than seen. He is a common bird of the Coastal Plain, seldom appearing where his cousin, the whip-poor-will, takes his place in the mountains and Piedmont. The insect-catcher's huge mouth is decorated with branching whiskers that guide his prey to their doom. Look for him at twilight when he takes to the air for dinner.

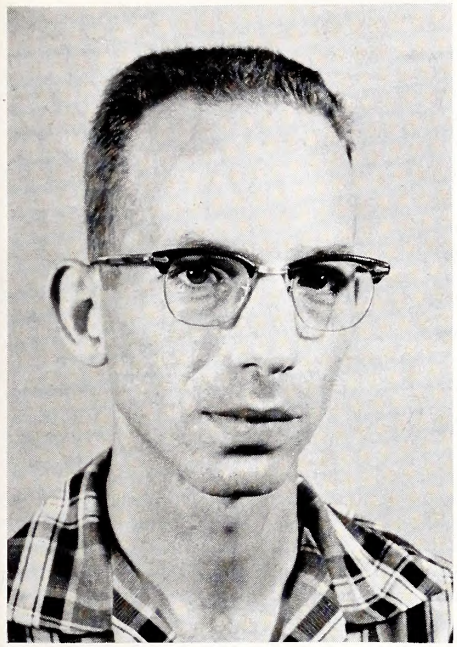
Photos by Jim Lee

It's nothing unusual to see someone using a farm tractor to bring in the fall harvest—or is it? This sea-going tractor is used during the fall mullet runs along the coast to help bring in the heavy mullet-filled nets.

The sea robin, despite his wing-like fins, is not a flying fish. A pedestrian, the robin walks on finger-like rays, feeling for crustaces. Shrimp lured this unlucky one to the pier.



Oberheu Appointed Refuge Supervisor



JOHN C. OBERHEU became supervisor of western North Carolina cooperative wildlife management areas on September 1, succeeding Malcolm G. Edwards. The change took place following the resignation of Edwards, who has accepted a position with the U. S. Forest Service in Gainesville, Georgia.

The new refuge supervisor has been a district game biologist in Wildlife Commission District 2 for three years, and supervising game biologist for one year. Oberheu has both bachelor's and master's degrees in wildlife management.

During the late summer Oberheu spent several weeks working with Edwards, learning the refuges and making plans for the coming managed hunts scheduled during the fall and winter months.

In his new capacity Oberheu will supervise wildlife management, wildlife protection, and managed hunts on far western cooperative wildlife management areas in the mountain counties. He will make his home in the Asheville area.

Edwards had been refuge supervisor since 1950. A State College graduate, he is a native of Buncombe County. Commenting on Edwards' resignation, Game Division Chief Frank Barick said, "He has been a key man in the expansion and improvement of our refuge program. He has rendered valuable service to the sportsmen of North Carolina and we will all miss the enthusiasm he put into his work."

The Game Division chief reported that Oberheu's appointment completes the staff of refuge supervisors. Oberheu is responsible for the nine westernmost refuges and Jack Larimer supervises activities on the other seven areas. Ted R. Mitchell was appointed earlier to supervise Piedmont and central refuges, and Ben H. James recently took Larimer's place as refuge supervisor for the coastal counties.

Replacing Oberheu in District 2 will be Roger Q. Bell of Manteo, a State College graduate who has also obtained a master's degree in wildlife management from Southern Illinois University. He has just completed two years of service with the U. S. Navy as a flight instructor, and will assume his position as district game biologist on October 1. The new employee will make his home in the Kinston area.

PROTECTOR OF THE MONTH

Harold R. Dail

Wildlife Protector Harold R. Dail was born in Walstonburg, Greene County, and finished Stantonsburg High School in 1943. He served with the U. S. Navy from September 1943 until February 1946, and spent 2 years overseas. Later, he worked as a personnel investigator with the W. G. Powell Company, located in Rocky Mount, and also with the Railway Mail Service in Norfolk, Virginia. He was employed as the Martin County Wildlife Protector on March 15, 1952, and has attended three Wildlife Protectors' Training Schools.

Wildlife Protector Dail is a member of the Martin, Tyrrell, and Washington Counties Peace Officers' Association, is married, and has one son and one daughter.

ENFORCEMENT RECORD FOR JULY

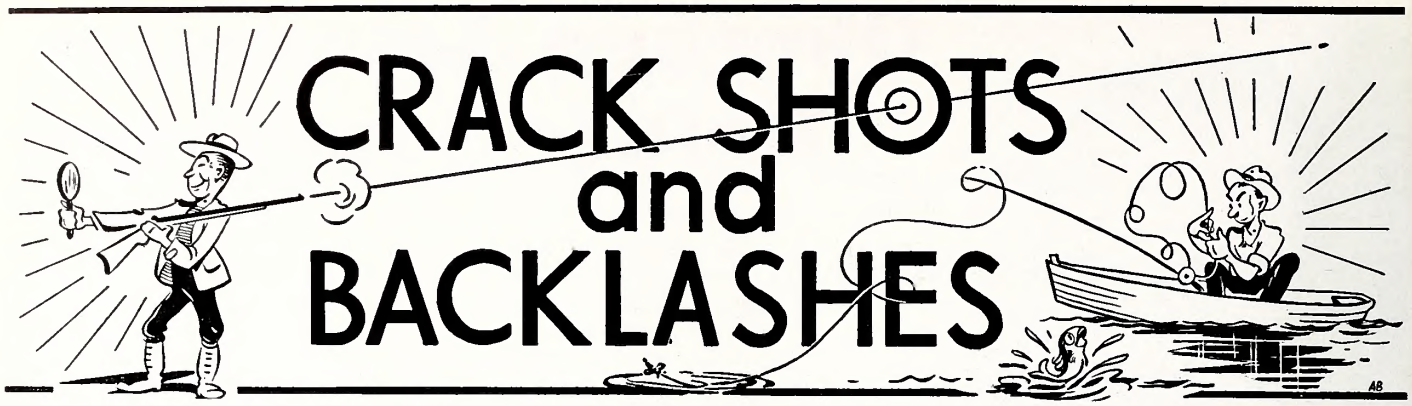
Persons checked	29,700
Total prosecutions	681
Total convictions	681
Total cases not guilty	5
Total cases nol prossed	3
Total fines collected	$3,437.00
Total costs collected	$5,138.79

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: For what game species must a shotgun be plugged to a three-shot capacity?

ANSWER: The General Statutes of North Carolina make it unlawful for any person to hunt, take, or kill any upland game birds, squirrels, or rabbits with or by means of any automatic-loading or hand-operated repeating shotgun capable of holding more than three shells. The Federal regulations make it unlawful to take migratory game birds with a shotgun capable of holding more than three shells.



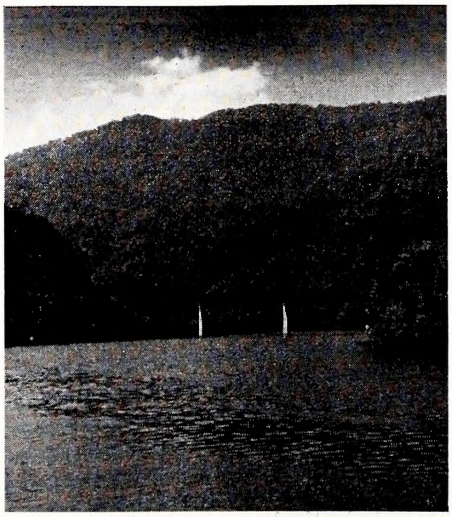
DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

You don't have to be a hunter or a fisherman to appreciate the value of our wildlife resources. Statistically, almost a million Tarheels and their guests go hunting or fishing sometime during each year. In pursuit of their favorite sport they spend almost a hundred million dollars. More people go hunting and fishing than attend all of the spectator sports combined. It is easy enough to put a dollar sign on the value of our wildlife resources, but it is much more difficult to determine its esthetic value. You can't put a price tag on the call of a bobwhite quail or the honk of a Canada goose or the sight of a deer bounding across a highway. Fishing tackle—and a fishing license—cost money. But can you evaluate the thrill of a bass or a bream coming to the surface to snatch your lure?

North Carolina is blessed with a variety of topography and fish and game that is almost unparalleled. In the hazy green mountains are deer and bear and wild boar. There are ravens at Clingman's Dome and mountain trout in the cool, clear mountain streams. Quail and rabbits are abundant in the Piedmont and Coastal Plains. On a still night you can hear the baying of foxhounds anywhere out in the country. Along the swamps and marshes there are woodcocks and marsh hens, otters, muskrats and alligators. Egrets hatch their young in rookeries, and on the sandy beaches gulls and terns and other water birds rear their young. Hundreds of thousands of ducks and geese and swans spend their winters from Currituck to Southport.

Whether you hunt or fish or enjoy wildlife simply for the sake of beauty, you must remember that our wildlife resource is worth protecting. In 1947 the North Carolina Legislature created the Wildlife Resources Commission and charged it with the responsibility of protecting and perpetuating our wildlife resources. Providing hunting and fishing for a million sportsmen, and esthetic beauty for countless others, is a tremendous task. More than two hundred and fifty people are employed in the job, on a budget of two and one half million dollars. It is pleasing to report that the entire budget comes from the sale of the hunting and fishing privilege licenses, and not one cent from general taxation.



Because of the ever-increasing demand for fish and game, the harvest must be apportioned through regulation so that everyone has an equal chance to successfully share in the sport. Regulations and the basic law are enforced by wildlife protectors. People are informed of the value of wildlife and the need for using the resources wisely. At the same time the fish and game are managed so that the supply is replenished from year to year, research is carried on to find the answers to wildlife conservation problems and to find better ways of providing an abundance of fish and game.

The following appeared in *Wildlife Magazine* almost ten years ago, and is as true today as it was then:

"The days when fish and game were a source of human sustenance are gone forever. The poetry of pointing dogs, the fellowship of congenial companions, the thrill of a bursting covey, the splash of a leaping trout, the smell of wood smoke and fish frying over a campfire—these are our wildlife heritage.

"We may use and enjoy this heritage, yet we must guard it so that we may pass it on to future generations, satisfied in the knowledge that we have used it wisely."

—Clyde P. Patton

Starlings Are the Worst Gluttons

DEAR SIR: Your being the Chief of Education might do a little educating on me, or whatever you might call it. I have been feeding wild birds for many years at my home. I have a tool shed at my kitchen window, and all the table scraps we have are put on the shed roof and do the birds enjoy them. I buy stale bread, wild rice seed, shelled peanuts, and lots of other things for bird feeding.

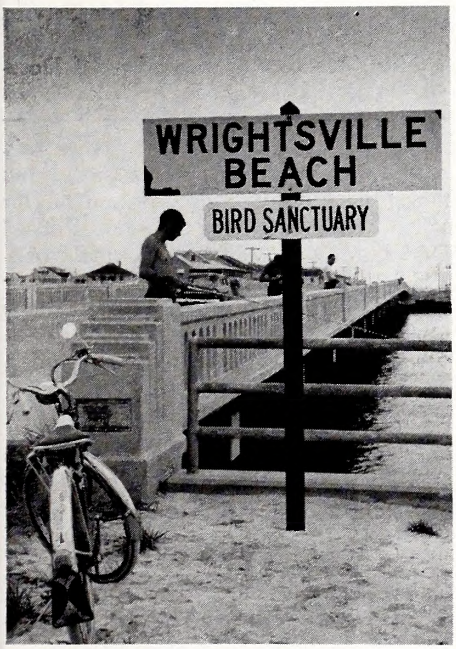
I have many different kinds of birds that feed on the shed roof. Cardinals, mocking birds, brown thrush, robins, occasionally a bluebird, jay birds, catbirds, and perhaps a thousand English sparrows which are all welcome to dine at my table, but there are (no one knows) how many starlings that blow in and clean up the food and leave. Believe me, they are the worst gluttons I have and would like to know what (if anything) I can do to

keep these rascals away. My mocking birds try it occasionally, but there are too many starlings for the mockers.

I enjoy Wildlife In North Carolina more than any publication I get. I do especially enjoy Crack Shots and Backlashes.

If you can not help me with the starlings please refer my request for help to Lucretia. She may come up with something. Keep up the good work. BOB BROWN, CHARLOTTE.

Lucretia, an expert starling exterminator, says to pull out all of their tail feathers. This will make them angry and they will go away. She did not, however, explain how to catch the starlings in the first place. Frankly, we are stumped. Maybe some of our readers can help.



Bridge Fishing

DEAR SIRS: In your July issue of Wildlife on page 22 you have a picture of a bridge at Wrightsville Beach. On this bridge you have the "No Fishing" sign circled and a column above the picture saying "Down Comes the No Fishing" sign from many coastal highway bridges following legislation sponsored by the N. C. Outdoor Writers Association. If you can, explain what this means because the sign at Wrightsville Beach is not down. TOMMY CANADY, WILMINGTON.

Thanks for calling our attention to the sign on the bridge at Wrightsville Beach. We have contacted the Highway Commission and Mr. Sam Beard assured us that the sign would be removed. A week or so later one of our photographers passed by the bridge, and found several fishermen trying their luck. The sign was down.

Ready With an Answer

Ray Knight, 12-year-old Jackson County 4-H club member, was giving a demonstration on building squirrel nest boxes at the 4-H state level demonstration competition. At the end of the demonstration one of the judges asked, "How many baby squirrels can you expect from each box?"

After a pause, the young wildlife enthusiast replied, "Well, that's not up to the box."

Speed Limit for Cars Towing Boats

According to the State Highway Patrol, a new speed limit affects cars towing boats on trailers. An amendment passed by the 1959 General Assembly states that *all* vehicles towing, drawing or pushing another vehicle may not exceed 45 miles per hour on open highways. A boat with trailer is considered a vehicle; thus you cannot exceed 45 when towing your boat. Probably the amendment will be interpreted to permit speeds up to 50 miles per hour on highways posted with a 60-miles-per-hour limit for passenger cars. The amendment is effective October 1, 1959.

Public Hearings

• Hearings on proposed 1960 FRESH WATER FISHING REGULATIONS will be held in three regional locations in October:

Date	Town
Oct. 5	Washington
Oct. 6	Salisbury
Oct. 7	Asheville

All hearings start at 7:30 p. m. and will be held in the County Courthouse.

• The Wildlife Resources Commission wants to hear the opinions and recommendations of sportsmen, and all persons interested in proposing changes or modifications of the Fishing Regulations are urged to attend.

Eleanor Blanchard of Raleigh photographed this bedraggled hawk ashore on Youpon Beach in June. Dried out, the immature bird shrugged its feathers and gaily flew away. How did this speedster of the woods get into his predicament?

SOURCES OF MATERIALS

Many free and inexpensive reading materials, posters and audio-visual aids, as well as other services, may be secured by writing to the various organizations which are concerned with conservation and resources-use education. Some of the most helpful materials may be secured at state and local levels since they usually deal with nearby problems and resources. Others may be obtained from national conservation organizations and the Federal government. Among these are the following:

American Forestry Association, 919 17th St., N. W., Washington 6, D. C.
American Nature Association, 1214 16th St., N. W., Washington 6, D. C.
Boy Scouts of America, National Council, New Brunswick, N. J.
Camp Fire Girls, Inc., 16 East 48th St., New York 17, N. Y.
The Conservation Education Association, Eastern Montana College of Education, Billings, Montana
The Conservation Foundation, 30 East 40th Street, New York 16, N. Y.
The Garden Club of America, Conservation and Roadside Committee, 15 East 58th St., New York 22, N. Y.
Girl Scouts of the United States of America, 155 East 44th St., New York 17, N. Y.
The Izaak Walton League of America, 31 North State St., Chicago 2, Ill.
National Audubon Society, 1130 Fifth Ave., New York 28, N. Y.
National Education Association, 1201 16th St., N. W., Washington 6, D. C.
National Wildlife Federation, 232 Carroll St., N. W., Washington 12, D. C.
Sport Fishing Institute, 413 Bond Building, Washington 5, D. C.
State Conservation or Fish and Game Departments (in each state capital)
State Departments of Education (in each state capital)
U. S. Department of Agriculture Forest Service, Washington 25, D. C.
U. S. Department of Agriculture, Soil Conservation Service, Washington 25, D. C.
U. S. Department of Health, Education, and Welfare, Office of Education, Washington 25, D. C.
U. S. Department of Health, Education, and Welfare, Public Health Service, Washington 25, D. C.
U. S. Department of the Interior, Fish and Wildlife Service, Washington 25, D. C.
U. S. Department of the Interior, National Park Service, Washington 25, D. C.
U. S. Government Printing Office, Superintendent of Documents, Washington 25, D. C.

Bow-Hunting for Waterfowl

DEAR SIRS: I am in the U.S.C.G., and have recently been stationed at U. S. Coast Guard Lifeboat Station, Ocracoke, North Carolina. My problem is that I hunt with gun and bow but prefer bow, and would like to know if bow hunting for waterfowl is permitted on the coastal islands of the State.

I am sending you a picture of a goldfish taken in 1957, in Guilford County, weight 4¼ pounds. Hope you like it. ROGER V. WHITFIELD, OCRACOKE.

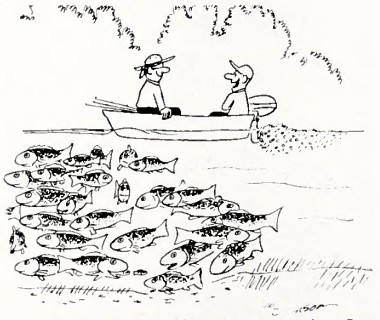
According to federal regulations it is legal to shoot waterfowl with bow and arrow. Your 1959-1960 hunting regulations describe the type of archery equipment legal for hunting in North Carolina. Sorry, the picture was not suitable for reproduction.

Want to make your own surf rod holder? Here is a practical idea from John W. Crowe of South Fork Mitchell, Kentucky: weld a 2-inch washer to an 18-inch steel rod and then weld a 7-inch spring to the washer.

35 Bluebird Houses

DEAR SIRS: We have been studying conservation. We made a special study on the bluebird. On February 28, 1959, we had a program about bluebirds. There are 34 children in our room and 35 birdhouses were built. We wonder if you could write up something about us in your magazine. Thank you. GRADE 5-1, BETTY WILKINS, TEACHER, FAYETTEVILLE.

The only writeup we could give would be "Congratulations on a splendid job." Bluebirds are among our most valuable songbirds, and more houses mean more birds.



"You can take it off now — we're here!"

Sea Turtle Not Protected

DEAR SIRS: We were quite upset last Saturday when we saw a poor helpless turtle killed on our beach. As you know, it was about full moon, time for turtles to lay their eggs. Most likely this turtle was heading for the shore for this purpose when its lip got snagged on a fishing line.

The two men at the ocean pier at New Topsail Beach drug her to shore with a hooked pole, and proceeded to kill her with an ice pick.

We are sure there is a law against this. At the time we spoke up and said so, but they just laughed. We thank you for the action we hope you will take. SARAH DAVIS, LOUISE FARMER, and MARTHA BLAND.

We appreciate your telling us about the capture of a turtle. Since the turtle is not protected by law there is nothing that can be done to protect them other than to encourage people to conserve them.

Sport Fishery Research

A number of Congressional conservation leaders have moved to initiate a national sport fishery research program. Purpose is twofold: (1) to secure new knowledge needed to help sustain sport fish yields in the face of rapidly mounting fishing pressure amidst apparently deteriorating resources, and (2) to cause a better balance of effort in relation to public interest to be expended on resource problems within the reorganized U. S. Fish and Wildlife Service, in view of a two-year failure by the Service to do so voluntarily. In our opinion, these Congressional conservation leaders deserve the thanks of anglers everywhere for their public-spirited actions.

Some time ago, Senator J. William Fulbright of Arkansas introduced S. 1262 to establish a long-sought research program on reservoir sport fisheries. Representa-

tive George S. McGovern of South Dakota introduced an identical bill, H.R. 5959, in the House. These were followed by the similar bills H.R. 6115 and H.R. 6184 introduced by Representatives Robert Sikes of Florida and Clement Miller of California, respectively.

About the same time, Representative Alton C. Lennon of North Carolina introduced H.R. 5004, calling for continuing research on the migratory coastal marine sport fishes. Shortly thereafter identical bills were introduced in quick succession by Representatives Robert Sikes of Florida (H.R. 6114), Clement Miller of California (H.R. 6185), and George Miller of California (H.R. 6753).

It is apparent from the broad geographical representation of the sponsors of these bills, concerning research needs for both reservoir and salt-water sport fisheries, that needs are evident throughout the distribution of these waters. Inland, they recognize the universal lack of knowledge sufficient to sustain good fishing in millions of areas of new and aging reservoirs, non-federal as well as federal. Along the coast, they recognize that the many millions of dollars spent to date for research on commercial fishery problems has produced little new knowledge of direct implication for *sport fisheries*. They recognize, too, that the problems are too urgent to permit them much longer to remain largely in a vacuum.

No doubt it was a similar awareness of needs that led the Izaak Walton League of America to pass a well-taken resolution on this subject at its recent Annual Convention in Philadelphia, concluding as follows:

NOW, THEREFORE, be it resolved by The Izaak Walton League of America, in 37th Annual Convention assembled in Philadelphia, Pennsylvania, on April 25, 1959, that it urge the Congress to pass suitable legislation, such as H.R. 5004, calling for research on the marine sport fishery resource, and S. 1262, calling for research on the extensive Federal reservoirs, directing the Secretary of the Interior to undertake appropriate and necessary research activities which will lead to better understanding of the biology of sport fishery resources in both salt and fresh waters, so that new and improved management measures may be developed which will permit the resource to support the expanding recreational use on a long-term sustained yield basis.

—*Sport Fishing Institute*

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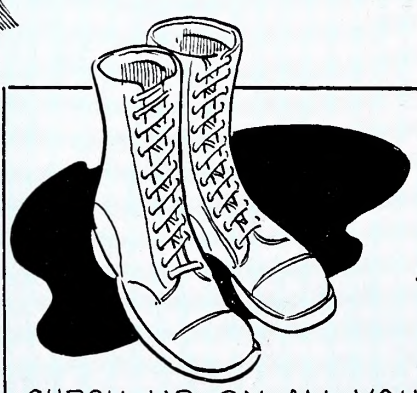
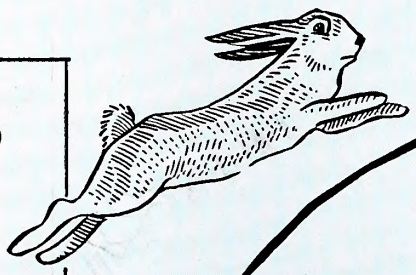
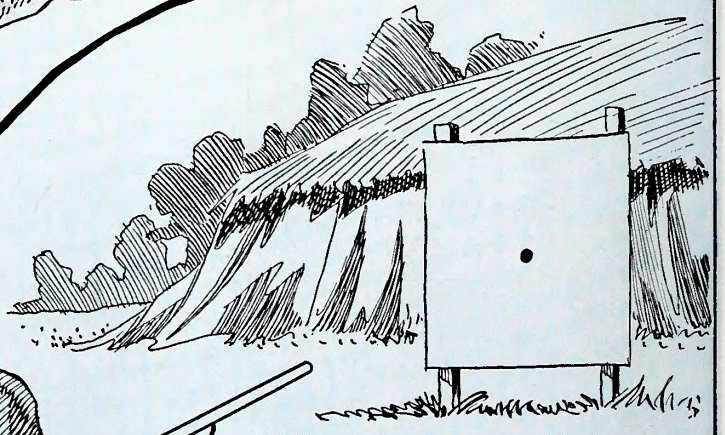


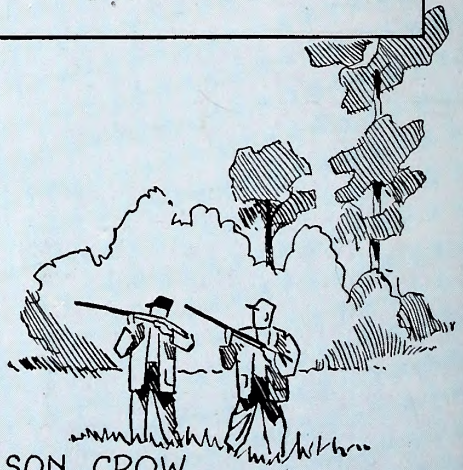
CHECK UP ON ALL YOUR GEAR – HUNTING COAT – SHIRTS – AMMUNITION – SOCKS – BOOTS – *ESPECIALLY THOSE BOOTS!*





ZERO IN YOUR RIFLE — PATTERN YOUR SHOTGUN AGAIN WITH THE SHELLS YOU WILL USE —

REMEMBER "OL' FAITHFUL" — BE SURE HE IS IN GOOD CONDITION AND READY FOR THE FIELD.



GET IN SOME PRE SEASON CROW SHOOTING – IT WILL REALLY SHARPEN YOUR EYE!

AL BARRETT

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Wildlife

NOVEMBER-1959

TEN CENTS

in north carolina

Thanksgiving Trophy

The rabbit season opens November 26 and ends February 15—more than two months of top sport. Bag limits are: daily, 5; possession, 10; season, 75. Let's go!

Photo by Jack Dermid

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

The canvasback (male above, female below) is one of the restricted species for the 1959-60 hunting season, and it is important that all duck hunters know how to identify it. See back cover for other species with reduced bag limits.

According to Birds of North Carolina: "The Canvasback . . . was formerly extremely abundant is North Carolina, but now it exists in sadly depleted numbers. Three major causes that contributed to producing these conditions were: Overshooting, the destruction of the duck's breeding grounds by drainage and prolonged drought, and a disease known as botulism." This was written years ago. The picture today is still not encouraging.

Water color by Wallace Hughes.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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Dove Tales

by Edward J. Larimer
Game Biologist
Photos by Jack Dermid

Tarheel sportsmen harvest an estimated 500,000 mourning doves annually—and do a lot of talking about this controversial bird. Here is the inside story.

GAMEBIRD or songbird? Hunting seasons too long or too short—and at the right or wrong times? How about bag limits? Are we wasting doves by shooting when nesting is still in progress? Lets talk about that controversial bird—the mourning dove.

The fine sporting qualities and wide availability of the dove, plus an early shooting season calling for no equipment other than a gun, appeal to all kinds of hunters. Thirty states hunt the feathered grey bullets as game birds. Southern and western sportsmen, born to a tradition of dove hunting, harvest the majority of the 20,000,000 doves bagged each year. These happy enthusiasts have made the dove the number one game bird in many sections. The growth in popularity of this sport is shown in the records of our own state. North Carolina hunters bagged an estimated 75,000 doves in 1927-28; the take in 1958 had leaped to nearly 500,000 birds.

There is a second side to this coin. The dove packs a powerful emotional appeal based on stories and songs dating back to Noah and his Ark. Eighteen mainland states rule that this is an untouchable songbird. Seasons have been closed in some sections for many years. Game agencies in other dove hunting states are harassed by well-organized groups seeking to remove the mourning dove from the shootable list.

There is little point in debating the gamebird versus songbird argument on the basis of sentimentality. It is a proved and documented fact that properly regulated hunting does no harm to the dove population. Doves are as numerous in those states where hunting is allowed as in those where hunting is prohibited. Populations rise and fall according to the same natural pattern under both conditions. There is no evidence that protection benefits the mourning dove. As we will see later, doves cannot be stockpiled.

Those who hunt or manage the dove as a game-

bird still face plenty of arguments and problems. These can be thrashed out on the firmer ground of facts gathered over the past twenty years by sweat and study. Wise management of our game rests on an understanding of the bird or animal to be managed. Let's take a close look at the dove—particularly in North Carolina.

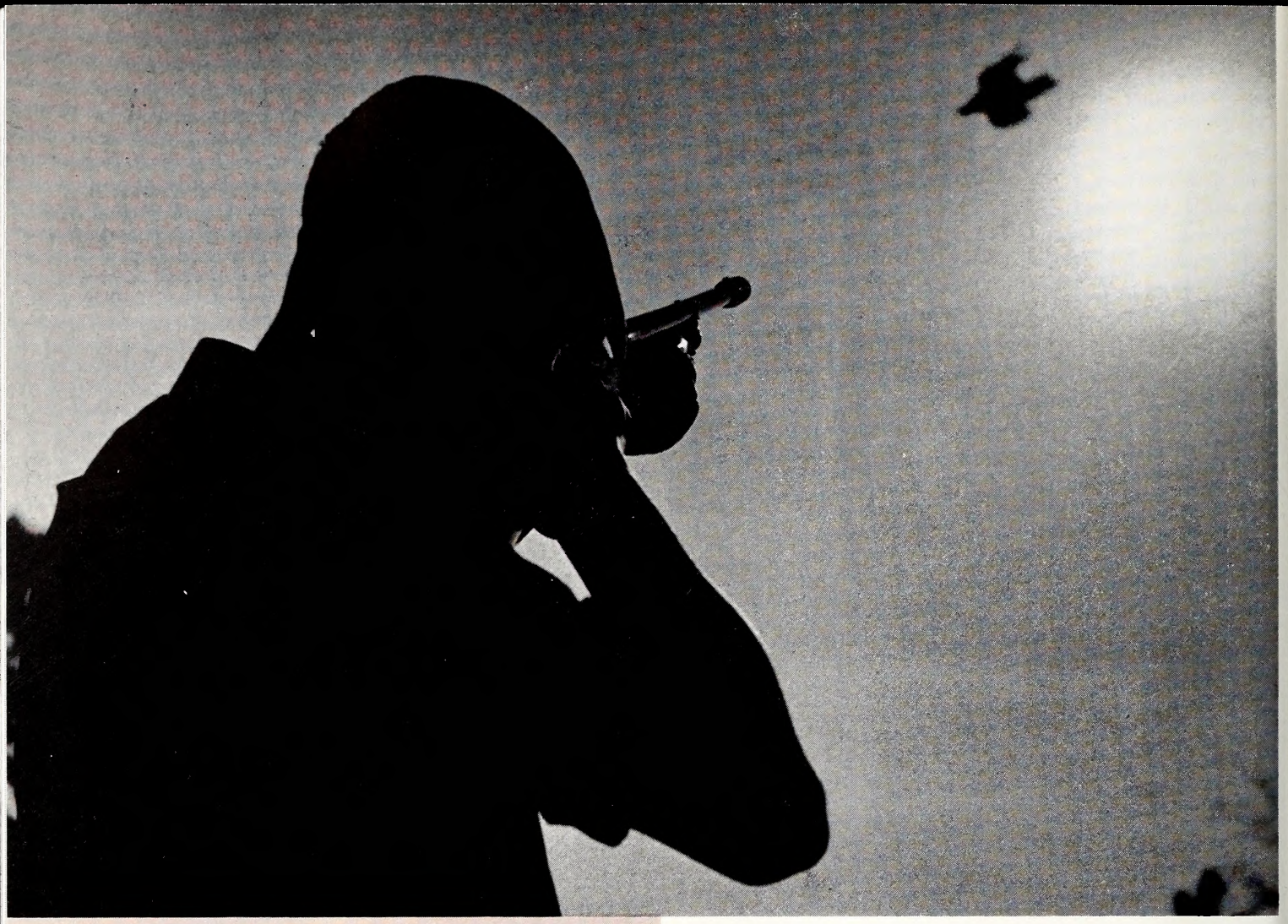
The mourning dove is migratory. It shifts southward in the fall and northward in the late winter or spring. The southeastern states winter most of the doves breeding in the eastern United States and Canada. Unfortunately, our state lies to the north of this main wintering grounds. This is a farm-game bird in that it relies on farms and farming for its nesting range and food. The seeds of crab-grass, corn, foxtail, paspalum, wheat, pokeweed, ragweed, galingale, soy-bean, cow-pea, and croton make up about 85 percent of the dove's diet in our state. These foods are either cultivated or associated with farming practices.

The dove is our only game bird that nests in forty-eight states—as well as in southern Canada, Mexico and the West Indies. It is also our only native game bird raising more than one brood of young birds during a single year. Two eggs requiring 14 days to hatch are laid following nest selection or construction. Both parents incubate the eggs and feed the young birds with "pigeon milk" and seeds. The young birds, usually either both males or both females, remain in the nest for 10-12 days. Thus, about 30-35 days are required to bring off a brood and then the nesting cycle starts all over again. Doves are considered as adults at 17-18 weeks of age but do not nest until the following year. A pair of North Carolina doves will attempt five or six nestings each year and will successfully raise an average of three broods or 5.1 young birds in a season. There is probably some nesting during every month but most of the breeding is from April through August. The peak of nesting is about mid-May and nesting is about 90 percent complete by September.

Like most small birds and animals, doves cannot be stockpiled. Life expectancy is less than one year. Nearly 73 percent of all North Carolina doves die from various causes within a single year. Weather is probably most important in these losses. The flimsy nests constructed by doves make both the eggs and the nestlings very vulnerable to high winds. Snow and freezing weather in the wintering grounds result in heavy starvation losses because these soft-footed birds are not scratchers and must have visible and easily available seeds for food. As a result of their flocking tendency, doves are particularly susceptible to a wide range of diseases and parasites—particularly trichomoniasis (canker disease or frowce). This disease is easily transmitted to nestlings through the regurgitated pigeon milk fed to them by infected parent birds. Predators and accidents are constant but unimportant killers. Hunting, including bagged birds, crippling losses, and illegal kills, account for less than 19 percent of the yearly mortality.

Now let us add some other facts to our store of dove knowledge. The U. S. Fish and Wildlife Service—not the individual states—regulates mourning dove shooting under the Migratory Bird Treaty Act of 1918. These regulations are based on a store of information gathered in partnership by Service and state biologists through road, plot, and call counts, trapping and banding, hunter bag checks, study areas, and other methods of investigation. Dove counts taken each spring furnish up-to-date information needed to keep the fall hunting regulations for the same year in tune with changing conditions

OPPOSITE: The mourning dove is the only game bird that nests in all forty-eight states. Here an adult broods its two nestlings. ABOVE: The average clutch contains two plain, white eggs. BELOW: Young doves grow rapidly and leave the nest when 10 to 12 days old. In North Carolina, each pair of adults will attempt 5 or 6 nestings annually, for about 3 successes.



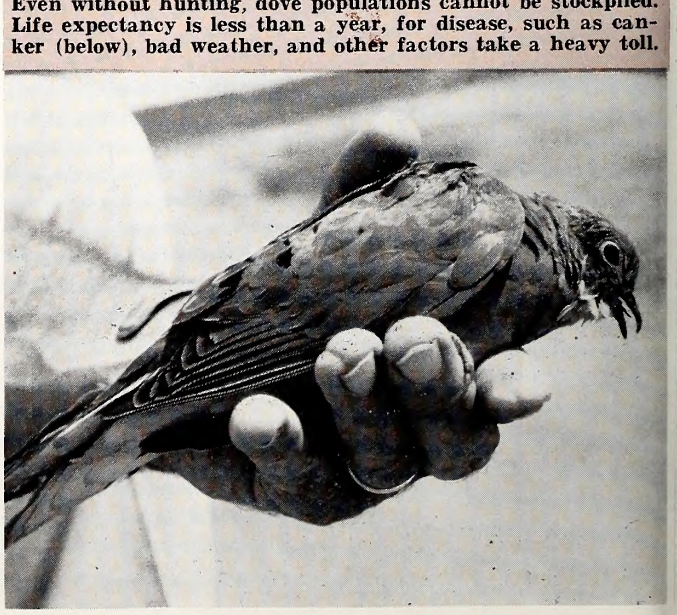
A feathered jet blasts across the sun for a difficult wingshot. Dove hunting is growing increasingly popular with sportsmen.

and year-to-year population variations. With this background let's try to answer more of our original questions.

First, are the hunting seasons for doves too long and are bag limits too high? We have seen that the Fish and Wildlife Service sets season lengths and bag limits on the basis of the current year's dove populations. By the use of this system, dove numbers have been maintained at satisfactory levels for the past eight years. Mourning doves probably are more numerous today than at any time in the past. Present regulations covering the length of the hunting season and the bag limits have insured that dove numbers will not suffer from gunning. If the dove population drops sharply, as it did in 1940 and again in 1950-51 because of severe weather in the wintering grounds and disease, the Fish and Wildlife Service stands ready to cut back both the season length and the bag limits immediately.

There is a possibility that seasons have been too short and bag limits too low. Hunters account for less than 19 percent of the annual dove losses—perhaps as little as 6 percent. Some small game populations have maintained their levels under a 35-40 percent gun harvest. Doves in heavily hunted southeastern states are known to have a 10 per cent greater turnover than those in unhunted states. Research shows that populations in the hunted states have not suffered. As in the case of other game birds and animals, a reasonable hunter harvest results in increased production. Perhaps the future holds a promise of longer seasons and

Even without hunting, dove populations cannot be stockpiled. Life expectancy is less than a year, for disease, such as canker (below), bad weather, and other factors take a heavy toll.



larger bag limits as we gather more knowledge. For the present, it is difficult to quarrel with success.

The Fish and Wildlife Service allows North Carolina a choice of two types of dove season. Within a bracket of dates specified by the Service, our Wildlife Resources Commission may choose either a single long season or a split season covering two shorter hunting periods. The ideal open season would fall when doves are most numerous, shooting is sporty, the breeding season is completed, and the harvest will remove those surplus birds not needed for next year's breeding stock. Dove habits are such as to make it impossible to meet all these conditions completely. Moreover, physical and climatic factors vary so much that no single season is satisfactory for all sections of the state. As a result, North Carolina chooses a split season as the best available compromise.

The first half of the 1959 split season for our state runs from September 12 to October 10. This is a period when doves are still numerous throughout the agricultural sections of the state, the great majority of the young birds are big enough to furnish sporting shooting, nesting is nearly 90 percent completed, and the harvest of off the top—that surplus of the year's production destined to be lost by natural causes before the next breeding season.

September dove hunting is sometimes criticized because a portion of the adult birds are still nesting. The element of truth in this argument is worth consideration. Investigations show that the North Carolina hunter harvest consists of about 64.7 percent immature birds and 35.3 percent adults. About 11.5 percent of the adults, or 3.3 percent of the hunter kill, are in breeding condition. The low number of breeding birds taken during the early hunting season is attributed partially to their more solitary feeding habits. In contrast, the flocking of immature doves and non-breeding adults to the feeding grounds tends to make them more vulnerable to the gun.

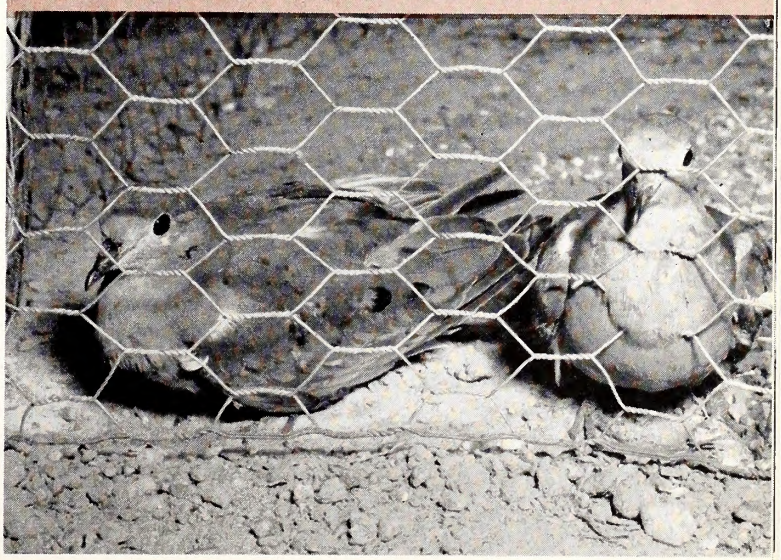
This small loss in nestlings resulting from September shooting fades into insignificance when compared to the natural nest mortality of 50 percent and the tremendous annual turnover. Moreover, other factors out-weigh the loss of nestlings. North Carolina dove populations are highest in late August and early September; lowest in October and November—the very months when there is least nesting. If hunting is not allowed in early September, natural mortality further reduces summer dove populations and would all but eliminate any harvest in the upper Piedmont and mountain sections of our state. Most of our sportsmen cannot expect any appreciable amount of hunting during a late fall or winter season because we are north of the main wintering grounds.

The second half of the 1959 split season in North Carolina runs from December 11 to January 15. This selection of dates avoids the October-November period of lowest dove populations. Coastal Plain and lower Piedmont hunters sometimes find excellent sport during this period. However, a very small percent of the North Carolina dove harvest is bagged during this second half of the season. Dove populations vary greatly and are very unstable. A zoning system would undoubtedly result in a better harvest for sportsmen from all sections of our state. However, until the Fish and Wildlife Service sees fit to allow zoning, the split early and late seasons remains as the best available choice.

Take a good supply of shells, pick a comfortable spot, and don't forget to lead your birds. Good hunting!

Every year, Commission biologists check hunters' kills to keep tab on the age compositions of flocks. The Tarheel harvest consists of about 65 percent juvenile and 35 percent adults.

In cooperation with the Fish and Wildlife Service, Commission biologists have trapped and banded thousands of doves to determine migration patterns, data useful in setting seasons.



The Brothers Tame the Carolina Wilderness

By Chester S. Davis

Reprinted from the Winston-Salem Journal & Sentinel

One of the earliest settlements in Piedmont North Carolina was that of the Moravians near what is now the City of Winston-Salem. The Moravian Church was founded in 1457 in Central Europe, and immigrants reached Pennsylvania in 1740. After founding Bethlehem in that state, they sent settlers to North Carolina. In the first of three parts, we find the pioneer colony moving to what the author calls a "howling wilderness."

IN the autumn of 1753 word came to Bethlehem from London that the Wachovia tract had been purchased from Lord Granville. The leaders of the Moravian towns in Pennsylvania went to Christiansbrunn, a farming community near Nazareth where the Single Brothers had a farm, dairy and mill, and carefully selected the party that was to make the long trip south to begin the Carolina settlement.

In the Moravian manner, two men were chosen to head the party; Bernhard Adam Grube, a minister, was to watch over spiritual affairs and Jacob Loesch, also a minister, served as business manager. All told, 15 men were picked to make the trip. Of these, 11 were to remain in Wachovia while four were to return to Pennsylvania where they would serve as advisors and be available to guide later parties to the "Yatkin" River country.

Each of the 11 men in the settlement party was a specialist. Hans Martin Kalberlahn, for example, was a doctor and Frederick Jacob Pfeil was a shoemaker. But each, in his own way, also was prepared to do whatever other work was needed.

Slow Trip

This party left Bethlehem on October 8, 1753, and headed their heavy-bodied horses and stout wagon down a trail that crossed Maryland and then wandered down the great valley of Virginia. It was a slow, laborious journey. There were rivers, the Potomac, James and Dan, and innumerable small streams, often steeply banked, to be crossed. Food and fodder were short. There was a bite in the November winds and on many days there was rain or a spit of snow in the air.

The Brothers entered North Carolina through what is now Stokes County and they worked their heavy wagon through the woods, around the wall of the Sauratown hills to the Wachovia tract.

On November 17, 1753 they came to a small log cabin, built by Hans Wagner and abandoned when Wagner, learning that the Moravians had purchased the land, moved on to the Yadkin River. At this place—they called it Bethabara, meaning the house of passage—they stopped. That night they read the daily text (it was "I know where thou dwellest") and held a Lovefeast in which they shared stewed pumpkin and corn meal mush. Along with turnips and "Journey cakes" this was the standard fare that first winter.

Worked Hard

On the 18th, the Sabbath, they rested but by dawn on the 19th they went to work with a vigor which, if Colonel William Byrd's reports on "Lubberland" are to be believed, was heretofore unheard of in easy-going colonial Carolina.

Within 10 days they had three acres of land cleared and were working that land with a plow built by Brother Henrich Feldhausen. Within five months they had planted additional land in wheat, corn, potatoes, flax, cotton, tobacco, barley, rye, millet, buckwheat, turnips and pumpkins. Besides that there was a garden, neatly fenced in chestnut rails, for "salat" greens.

During the spring of 1754 the Brothers traveled among their neighbors, purchasing apple and peach trees for their orchard, swine to fatten on the oak and chestnut mast, cows (marked with an M burned on one flank and one inch cropped off the left

ear) and poultry. Improving with what they had at hand—for example, before they established a cooperage the Brothers burned barrels from tree trunks—they built a town in the middle of a howling nowhere. Except for a very few items—salt, coffee, glass and nails—it was a self-supporting town.

In those very early days the Brothers were bothered less by Indians, insects and wild beasts than they were by nosy neighbors. Brother Grube confessed, "It is very inconvenient for us to entertain strangers for our space is small and we have nothing for them to sleep on." Yet, as he admitted, "Nearly every day we have some extra people to feed."

Also to See the Doctor

These people came to Bethabara to gawk at the 11 Brothers and they came also to visit the doctor. The early diary is filled with notations such as "An Irishman came to have a tooth pulled." The visitors came also to ask the tailor to make them a pair of leather breeches or to buy a pair of brogans from the cobbler. Later they came to purchase nails from the smith, earthenware from the potter and wine and brandy from the distiller. Brother Hans Peterson, as Fremden Diener, served as official host to the visitors.

This trade, drawn from many miles around, grew as a store was opened and other craftsmen—a gunsmith, for example—came down from Pennsylvania. In the very beginning most of the trade was in kind. When neighbor Abraham Wilson cut his foot, for example, Dr. Kalberlahn patched him up for a fee of two cows. Another time two German visitors agreed to fell 100 trees and make 3,000 shingles for two pairs of shoes. ". . .We not only had enough for ourselves," the Moravians said, "but were able to help many hundreds of people who came to us from 60 miles away."

Because this parade of visitors inconvenienced them, often causing a Brother to sit out the "night watch" while some stranger snored in his bed, the first new building at Bethabara was a small log cabin guest house.

Neighborhood School

As a matter of fact, the first school at Bethabara was established for the benefit of neighbors. In those early years the Brothers and Sisters who came to Wachovia left their children behind. The only children of school age in the area were those of the neighbors.

The important thing, whether they worked for themselves or for their neighbors, was the unending diligence that marked these quiet people.

It is commonly said that in a communal society —a society in which each man contributes according to his ability and shares according to his need —there is no incentive to cause a fellow to hump along any harder than is absolutely essential. But that is not necessarily the case and you need only to look at the bee, the ant and the Moravian for proof of the fact.

Consider, for example, the case of John Jacob Friis who came from Bethlehem to serve as pastor at Bethabara in 1754. His diary reflects the spirit of those first days. For, along with his pastoral duties, Brother Friis served as a jack of many trades.

On April 29th, 1754, he reports, "I sought swine the whole afternoon. . .For the first time put on Indian shoes, they are light but my feet are yet too tender."

Joiner and Carver

On a day when he had been carving table feet in the shape of a lion's claws Friis philosophised, "One day I am a joiner and the next a carver; what could I not learn if I were not too old?" On yet another day he recorded the fact "I am your first cowherd in North Carolina."

These jottings from the pastor's diary capture the spirit of the time:

July 3 Friis helps bring in flax.

July 4 Friis serves as village cook.

July 6 Friis picks blackberries to make vinegar.

July 12 "I was the watcher of the fowl. At this work one must be very brisk and active."

July 13 "I cleaned the yard and sleep hall."

July 16 "We have smoked for a fortnight our new tobacco. It grows incomparably well."

Among the other Brothers it was the same. As a result, by the close of 1755, the Bethabara was solidly established. There was a Gemein Haus (meeting house), a two-story Single Brother's House, a mill, a smithy, a cooperage, two bridges, a tool house, a brick kiln, a pottery, tannery, wash house, tailor's shop and six houses in the village, plus a house at the mill for the miller and his guests.

Considerable acreage of land had been cleared and planted. Roads had been cut to the Yadkin and to connect with the main road to Salisbury. More than that, the Brethen had surrounded Bethabara with a palisade.

As colonists on the lonely frontier these beaverish fellows were unequalled. But, before we look again at their labors, it might be well to pause to consider the nature and the resources of this land they sought to tame.

In the next issue will be the story of how the Moravians used the virgin forest that they found on the Wachovia tract.

For the Sins of a Few...

Photo Short by Rod Amundson

ABOUT two years ago the Dr. Grabow Pipe Company, whose factory is located at Sparta, opened its twenty-five-acre pond to public fishing. The Wildlife Resources Commission stocked the pond with trout and fishing was fine. In fact, everything was fine until the trout season opened last April.

Last April 5 was one of those raw, cold days. When the fishing season opened officially at 7:00 a.m., several hundreds of trout fishermen were on hand to try their luck. Before the day was over local wildlife protectors vowed that at least two thousand anglers visited the pond. Despite the cold weather some good catches were made, but that cold weather started the trouble.

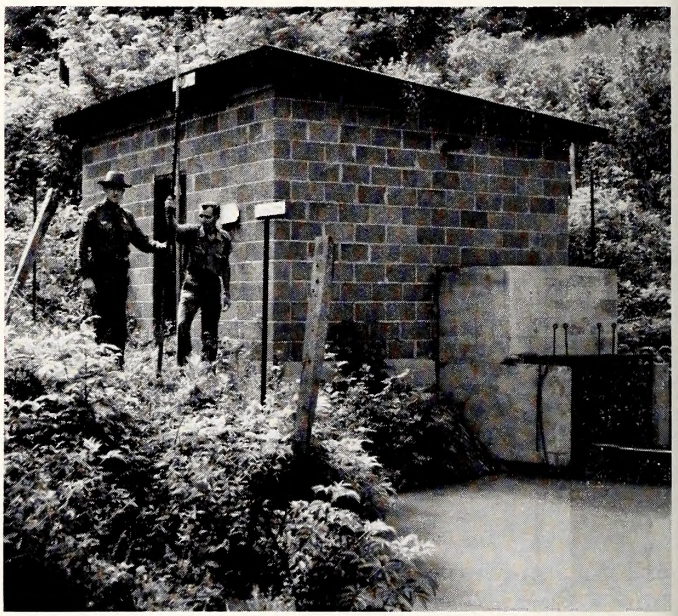
When fishermen get cold they build a fire.

Apparently the supply of fallen twigs and branches under the trees surrounding the pond didn't last long. There remained (for a while) the wooden fence around the Grabow Company's pump house. Within a short time the wooden fence was reduced to charcoal and ashes on various campfires.

The Grabow Company had performed a service when it granted public access to the pond. Fishermen abused that privilege when they destroyed private property. The action might have been partly born of mob spirit, partly holiday spirit. At any rate the fence was gone, and Company officials rightfully determined to close the pond.

There will be fishing in the Grabow pond next April when the trout season opens, but on certain conditions. The Wildlife Commission already has met one condition by replacing the wooden fence with one of steel posts and barbed wire. The other condition must be met by anglers in respecting private property.

It would be sad if several thousands of fishermen were to lose a good fishing spot because of the vandalism of a few.



ABOVE: This pumphouse was protected by a wooden fence—until fishermen tore down the fence for firewood. The Wildlife Commission replaced the fence; the future is up to the anglers.

BELOW: This is the Grabow Company's 25-acre pond, graciously opened to public fishing by the company, stocked with trout by the Commission. Anglers must respect private property.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Waterfowl Seasons Open In November

The season on geese in North Carolina gets under way on November 10, and for ducks on November 20. Shooting hours are from sunrise to sunset with two geese allowed daily and four in possession; the duck bag limit is three daily and six in possession. A shortage of ducks in general made the shorter season and smaller bag limit necessary. Canvasback, redhead, and ruddy ducks come under special bag restrictions. Copies of the federal migratory game bird regulations are available from the U. S. Fish and Wildlife Service, Washington, D. C. or Washington, N. C.

Mattamuskeet Blinds Available

The Wildlife Resources Commission has announced that as of October 15 a number of lake blinds at Mattamuskeet were available for booking. Following are dates on which blinds are still available, and the number of blinds on each date: NOVEMBER 10-3; 11-9; 12-24; 13-25; 14-25; 16-29; 17-28; 18-23; 19-21; 25-3; 26-1. DECEMBER 3-1; 5-3; 9-6; 10-1; 12-6; 14-9; 15-2; 16-19; 17-23; 18-18; 19-22; 21-20; 22-24; 23-31; 24-32; 25-32; 26-38; 29-1; 30-17; 31-20. JANUARY 1-22; 2-23; 4-8; 5-3; 6-16; 7-9; 8-12.

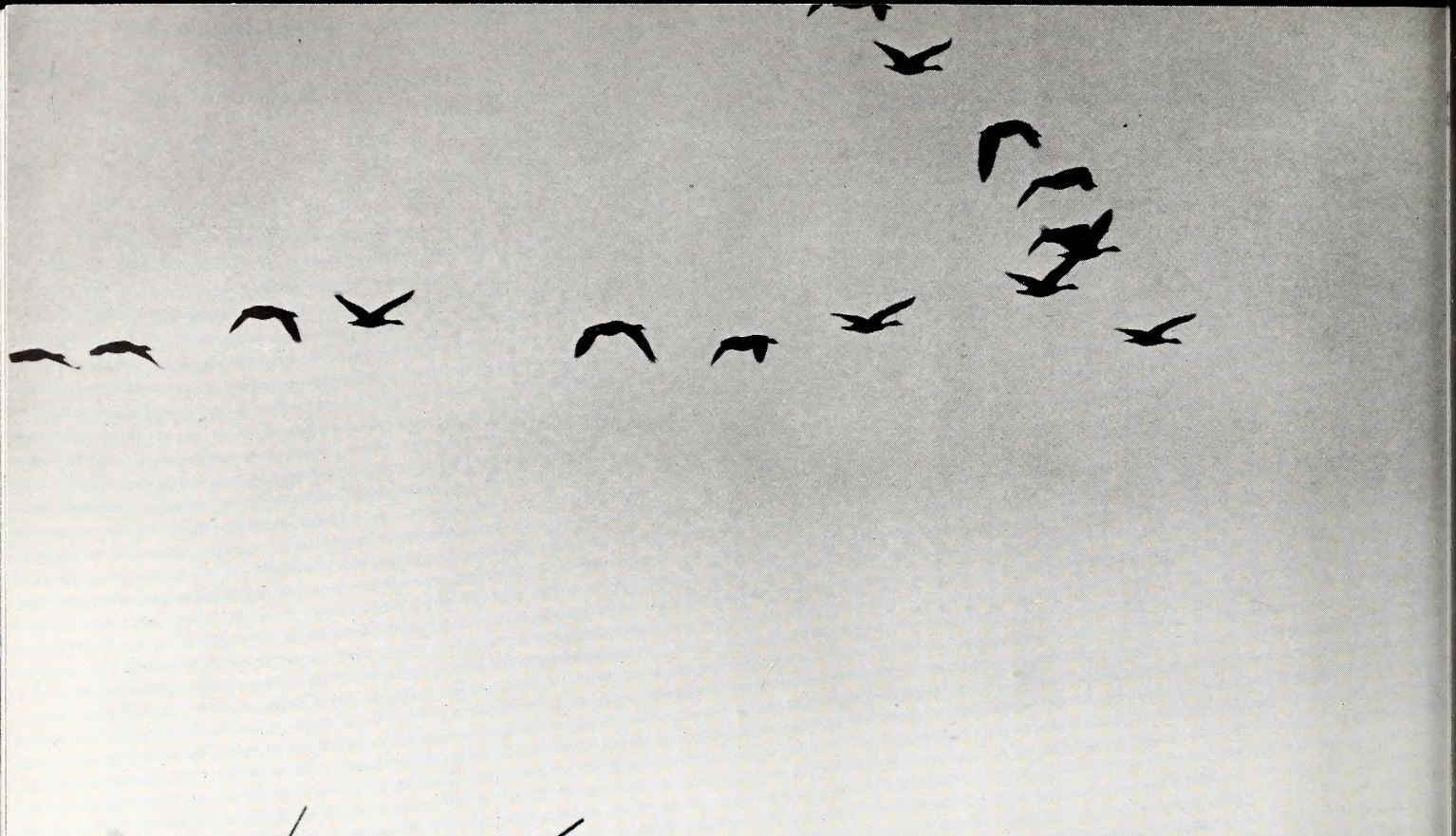
Reservations may be made on regular forms, or by letter or telephone to: L. B. Tunnell, New Holland, N. C., Phone Swan Quarter 162. Guide fees must be remitted before reservations can be confirmed.

Conservation Scholarships Announced

The trustees of the North Carolina Conservation Educational Fund have announced the availability of two $250.00 scholarships for incoming freshmen in the Wildlife Biology curriculum at N. C. State Colege. Awards will be made on the basis of scholarship promise and attainment, financial need, character and leadership potential, and interest in and the desire to enter the wildlife profession. For details contact Dr. F. S. Barkalow, Zoology Department, N. C. State College, Raleigh. The scholarships are sponsored by the Wildlife Federation.

Boat Registration Applications Available

After November 1, 1959, application forms for registering boats more than ten horsepower will be available from all hunting license dealers or directly from the Wildlife Commission, Boating Registration Section, Box 2919, Raleigh.



Magic Mattamuskeet

Photo Feature by Jack Dermid

MATTAMUSKEET is a magic word to the sportsman. If he has heard the wild calls of Canada geese rising from the brooding marshes, watched their majestic flights against a sunrise, the mere mention of the name stirs his memory of happy days in a blind. If he has never been there, the word incites dreams of a future adventure.

The fame of Lake Mattamuskeet National Wildlife Refuge is far-reaching, and justly so, for it is the winter home of thousands of ducks, Canada geese, and whistling swans. It is a waterfowl refuge where hunting is permitted, and its history is as colorful and intriguing as a novel.

Canada geese are the most conspicuous winter residents. During their stay between October and March, the vast marshes know little silence and the sky seems alive as formations of geese trade back and forth between feeding and resting areas. The peak population occurred during the winter of 1958-59 when 120,000 geese were counted. The same year saw 218,700 ducks on the refuge for a tremendous total of about 340,000 birds. Census figures during the ten-year period between 1948 and 1958 average 75,000 geese and 90,000 ducks annually. The pintail is usually the most abundant duck with lesser scaup, baldpate, black duck, mallard, and green-winged teal occurring in goodly numbers. Between 2,000 and 4,000 swans visit the refuge each winter.

This year there are 32 blinds on the south side of the refuge available to hunters. Hunting is under the supervision of the

ght of low-flying Canada geese creates an exciting mo-
at Mattamuskeet. Most blinds provide shooting over water.

Experienced guides accompany hunters in blinds. Many have retrievers to fetch kills and add to the enjoyment of the hunt.

Wildlife Resources Commission in cooperation with the Bureau of Sport Fisheries and Wildlife. A local guide is in charge of each blind, and fees are as follows: two hunters per blind, $15; three hunters, $21; four hunters, $24. In addition, each hunter must purchase a daily Lake Mattamuskeet hunting permit for $2 and have in his possession a valid hunting license and duck stamp.

The demand for blinds on certain dates is sometimes heavy, and first applications are accepted each year during the last two weeks of September on a first-come, first-served basis. These early applications must be made on official forms and submitted by mail after a specified date, the postmark determining the order of hunt reservations. Official forms and information sheets are available each year after the waterfowl hunting season is set and can be obtained by writing the Wildlife Commission in Raleigh or to L. B. Tunnell, Refuge Manager, New Holland, North Carolina.

Vacancies which exist after the first applications are received and those created by cancellations are also filled on a first-come, first-served basis.

This season many blind vacancies remain, and hunters can make reservations upon personal application to L. B. Tunnell. A telephone call (number 162, Swanquarter) to him will provide hunters with the latest information on the availability of blinds. See Resource-O-Gram for more details.

Even if all blinds are taken on the refuge for a certain day, there is still plenty of hunting opportunity available. Many landowners surrounding the refuge lease blinds in their fields for $5 per day per person, and "seconds" on the refuge blinds are usually available.

The origin and history of the 50,000-acre refuge stirs the imagination. According to Indian legend, the lake was formed after decades of peat fires burned out the saucer-like depression. Other stories of origin suggest that the lake resulted from the crash of a gigantic meteor or that the water was impounded by the rising shoreline of an ancient sea. An old shoreline, high farmland to the south, is the topographic feature providing for the lake today.

During the early part of the century, an effort was made to drain the lake and convert its fertile bottom into an agricultural paradise. Mattamuskeet Lodge, formerly a pumping station, and the canal banks which radiate into the lake are present-day reminders of this multi-million dollar folly. The lake refilled, was established as a refuge in 1934, and has been managed intensively for waterfowl since.

Refuge blinds are roomy, well constructed, and camouflaged with vegetation. Decoys are set to lure waterfowl within range.

Mattamuskeet Lodge—converted pumping station—is a familar landmark of the refuge. The chimney is used as an observation tower. Many additional accommodations are available nearby.

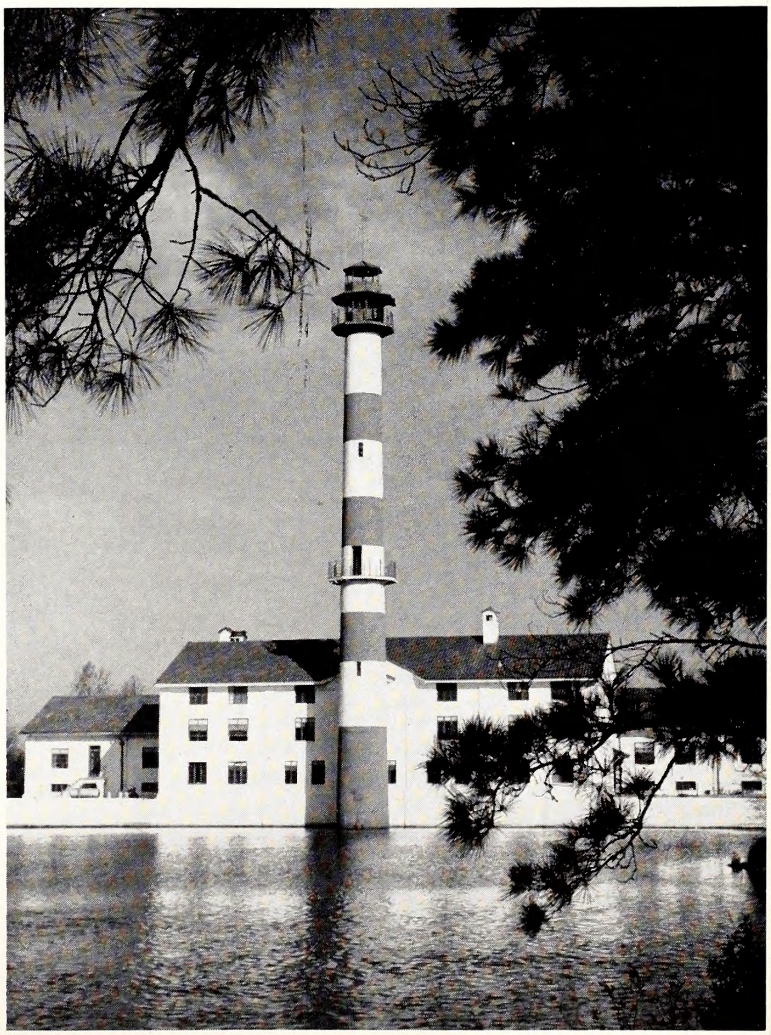


Photo by Bill Hamnett

Duane Raver, Commission education representative, dips fish and other creatures from a pond for the youngsters to study.

Farm Ponds Provide Outdoor Classroom

School Page by Bertha B. Weston
Science Teacher
Fuquay Springs School

DOES the pond smell fishy or do the fish smell pondy?" This question stimulated research work, exploring the field of minute plants and animals. Students began finding out many facts about algae, diatoms, plankton, pond scum, amoeba, paramecia. They were doing this on their own and having fun.

The girls in the Fuquay Springs' eighth grade science classes declared that this study of ponds that we had begun was far more interesting than an earlier unit we had studied on simple machines. The boys were inclined to disagree until we began looking for tiny animals through the microscope and bioscope. Maybe it was the mechanism of these enlarging devices that added just the appeal that a boy needs to do his best work. Anyway, all three classes became so interested that most class periods were given over to the contributions from class members.

One class, in particular, stands out in my mind. Someone had seen a lizard at the pond on one of our field trips. From that it began. We decided that more should be known about them. The class period next day was far more interesting than any ball game I ever attended. Each class member was so eager to relate the facts he had acquired that we had to take a few minutes of our lunch period to conclude the discussion.

It was more exciting than a picnic when representatives of the Wildlife Resources Commission came to assist in the study, along with the help of Mr. George Winchester, Soil Conservationist.

Mr. Winchester showed some aerial maps of Fuquay Springs and outlying areas. The students exclaimed when they discovered their house or pond on the map. This was a new and wonderful experience for them. His demonstration of soil and their types in relation to pond construction was a very real lesson so closely related to our study. Maybe it was Mr. Winchester's disarming personality or his wealth of information that impressed the class; nevertheless, a final examination question concerning the soil requirements for a good pond was answered well.

Mr. Duane Raver knew how to capture his teenage group with chalk-board drawings of fish. It was nothing unusual to hear a student remark, "That man really knows his subject." "I could sit for hours and listen to him talking about the habits of fish." "I'd like to be a fish biologist." When one chap saw

Mr. Raver don a pair of wading boots, he said, "I think I am going to ask for wading boots next Christmas."

Miss Barber made animal study around the pond a delightful experience. The skins of the mink, otter, and muskrat she showed caused everyone to marvel that so pretty a pelt could have belonged to pond inhabitants.

Mr. Bill Hammett impressed the classes with his ready knowledge of wildflowers. It was a laborious task for the class to identify specimens they had collected for their flower scrap books which they exhibited in the high school lobby. The identifying of parts of flowers proved to be a satisfactory learning experience. They never ceased to wonder at the minute details of Queen Ann's Lace and other small flowers blooming near the pond.

There were so many facets of science that became more than theory as we studied ponds. The "bent" boat paddle lying in water could be understood; the rainbow caused by splashing water was an unraveled mystery; angles of incidence and angles of reflection made introduction to higher math more real.

Conservation movies—which the students narrated themselves after first viewing them with orginal sound—helped the students to better understand siltation, pollution, fish spawning, and water use. The terms that were new were added to our vocabulary; pride in spelling was noticed and an urgency to express oneself in composition became apparent.

The pond study lent itself to a most complete coverage of intermediate science study. It was challenging to teacher and student. Each is richer because of the experience.

A farm pond is a community of living things. The study of frogs, fish, and soil and water conservation is fascinating to children and provides knowledge that will enrich their lives.

Photo by Jack Dermid

Book Review

FOOD HABITS OF THE CANADA GOOSE AT LAKE MATTAMUSKEET, NORTH CAROLINA. By Carl S. Yelverton and Thomas L. Quay. North Carolina Wildlife Resources Commission, Raleigh, 1959. 44 pages, 9 tables, 20 photos. Free.

Lake Mattamuskeet is the most important wintering area for Canada geese in the southeast, and the Canada goose is one of our most abundant and important species of waterfowl. Both the refuge and the bird are of tremendous value to the people of North Carolina.

Food Habits of the Canada Goose at Lake Mattamuskeet is a step forward in basic research that will lead to a better understanding of the goose and its relationship to its winter home. This knowledge can be applied to develop useful management techniques which, in turn, will produce better hunting.

The bulletin reports on the foods found in 263 gizzards and 31 crops collected from geese during the hunting seasons of 1951-52 and 1953-54 and correlates this information with the plant communities or habitats which occur at Lake Mattamuskeet. Sedges constituted 63% of the total volume of food consumed; grasses 33%; while the remaining 4% was distributed among 31 other plant families. The most important sedges were dwarf spikerushes (*Eleocaris olivacea* and *E. parvula*) and threesquare (*Scirpus americanus*). The most important grass was corn.

Ten major plant habitats on the refuge are described and illustrated by photographs, two in the open lake and eight in the marsh. Plant species present in each are listed, and the availability of foods and their use by waterfowl are discussed. The four most important feeding grounds for geese were the spikerush drawdown flats (7,000 acres), spikerush—threesquare low marsh (1,500 acres), willow—wax myrtle low marsh (1,000 acres), and farmland (200 acres). It was pointed out that the vast beds of muskgrasses (17,000 acres) in the open lake were practically unused by geese. This is surprising since muskgrasses are among the foods taken by ducks. Soybeans were found to be of little importance during the time of the study.

The publication was written for both the scientist and the sportsman. Biologists will find the tabulated results of the stomach analyses and the thorough discussion on plant foods of considerable value. Sportsmen will find an interesting history and description of Mattamuskeet Refuge, a listing of the species and numbers of waterfowl wintering there, and an introduction into the techniques of waterfowl management.

Food Habits of the Canada Goose at Lake Mattamuskeet was published by the Wildlife Resources Commission, Box 2919, Raleigh. Single copies will be sent free upon request.—*Jack Dermid*

PERSONNEL CHANGES ANNOUNCED IN KEY WILDLIFE COMMISSION JOBS

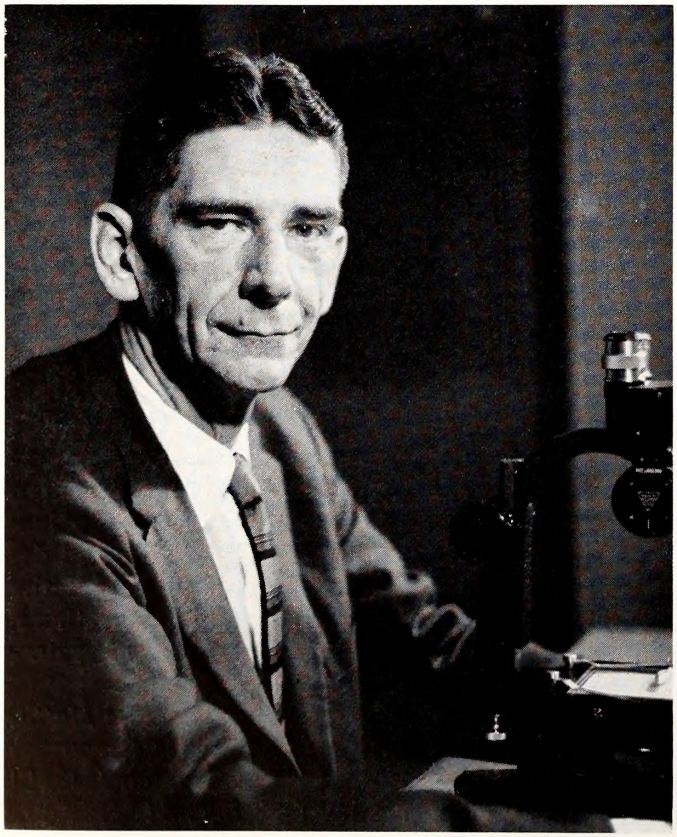
IMPORTANT changes have taken place in the Fish Division following a reorganization of duties. The Federal Aid Coordinator for Dingell-Johnson funds, Duane F. Raver, is transferring to the Education Division on November 1, and other duties have been divided between two employees.

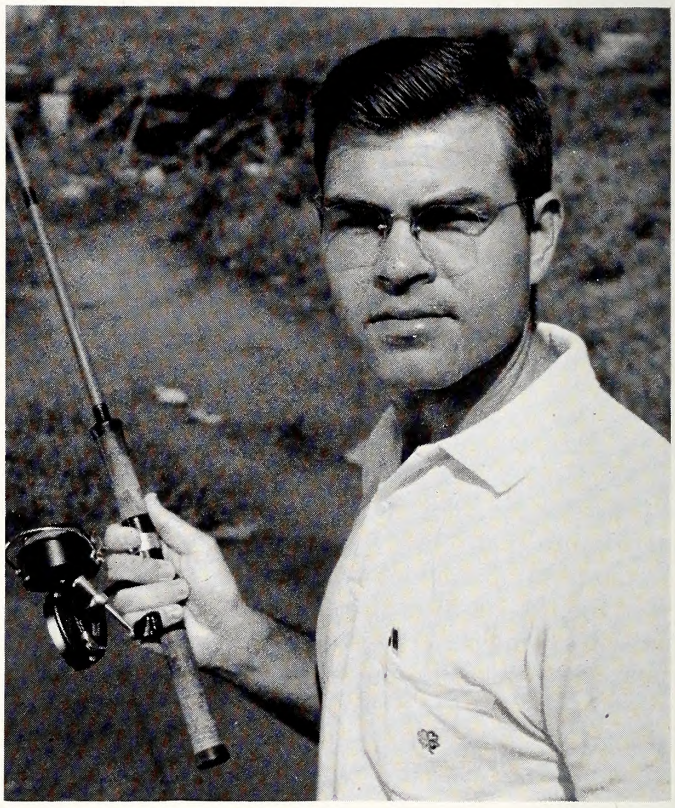
Lee B. Tebo has been supervisor of fisheries research and management for several years. This position has been changed, according to Fish Division Chief J. Harry Cornell, to provide for separation between the two functions. Tebo will continue as supervisor of fisheries research, and in this capacity will direct the investigations of fisheries problems throughout the state.

Filling the position of supervisor of fisheries management is Dr. Fred F. Fish, former coordinator of the Roanoke River Cooperative Studies for the U. S. Public Health Service.

Dr. Fish joins the Wildlife Resources Commission after twenty years with the U. S. Public Health Service. A graduate of Cornell and Johns Hopkins, the biologist has specialized in effects of pollution on fish life during a career that has brought him national recognition in this field. He has worked in several parts of the country.

Dr. Fred F. Fish





Duane F. Raver

Dr. Fish came to North Carolina in 1956 when he was assigned to the Roanoke River studies. He resigned to join the Wildlife Commission staff upon completion of these studies.

Duane F. Raver is transferring to the Education Division as a specialist in safety, with emphasis on boating safety. He will be largely concerned with the education program of the Motorboat Safety Act of 1959, which takes effect on January 1, 1960. Raver has been Dingell-Johnson coordinator since 1952 in the Fish Division, supervising the use of federal funds from the excise tax on fishing tackle.

Raver is one of the top fish artists in the United States, and has regularly contributed to such conservation magazines as *Virginia Wildlife* as well as cover paintings, articles and inside illustrations for *Wildlife in North Carolina*.

The Cary resident was assigned field work for two years after joining the Commission staff in 1950. He began writing for Commission publications after coming to the Raleigh office in 1952. For two summers he has conducted informal television programs on WUNC-TV, and has appeared as a representative of the Commission at camps and club meetings throughout the state during this time.

WILDLIFE CLUBS HOLD ANNUAL MEET

Hal B. Saunders, representing the Currituck County Wildlife Club, received a charter from N. C. Wildlife Federation Executive Secretary Turner B. Battle.

Representatives from a large number of local wildlife clubs met at Pinehurst October 2 and 3 for the annual gathering of the North Carolina Wildlife Federation. The meeting was preceded by a director's meeting on October 1.

Delegates were joined by members of the Wildlife Commission and staff, who met with the Federation members during their banquet and business sessions.

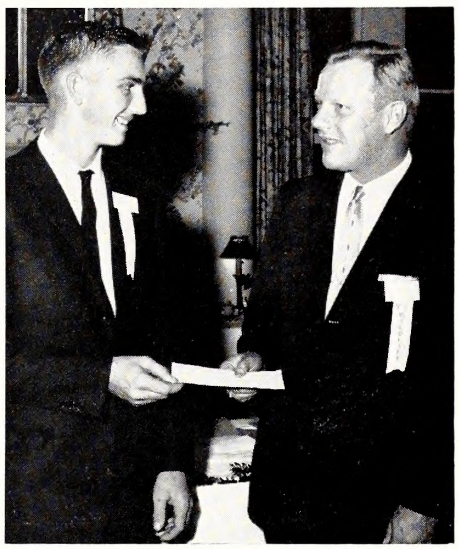
Highlight of the annual meeting was the Friday night banquet. Speaker Bud Jackson, former National Wildlife Federation field representative, entertained the gathering with an account of his recent trip to Africa.

Special guests at the dinner included Claude Kelley of Alabama, president of the National Wildlife Federation.

The host club for the meeting was the Moore County Wildlife Club. Members of the Moore County group won high praise for their efforts in presenting an interesting program.

During the business session a number of resolutions were presented. Included were proposals regarding preservation of the Dismal Swamp Canal, dredging in Currituck Sound, and several resolutions endorsing the National Federation's stand on wide-spread problems.

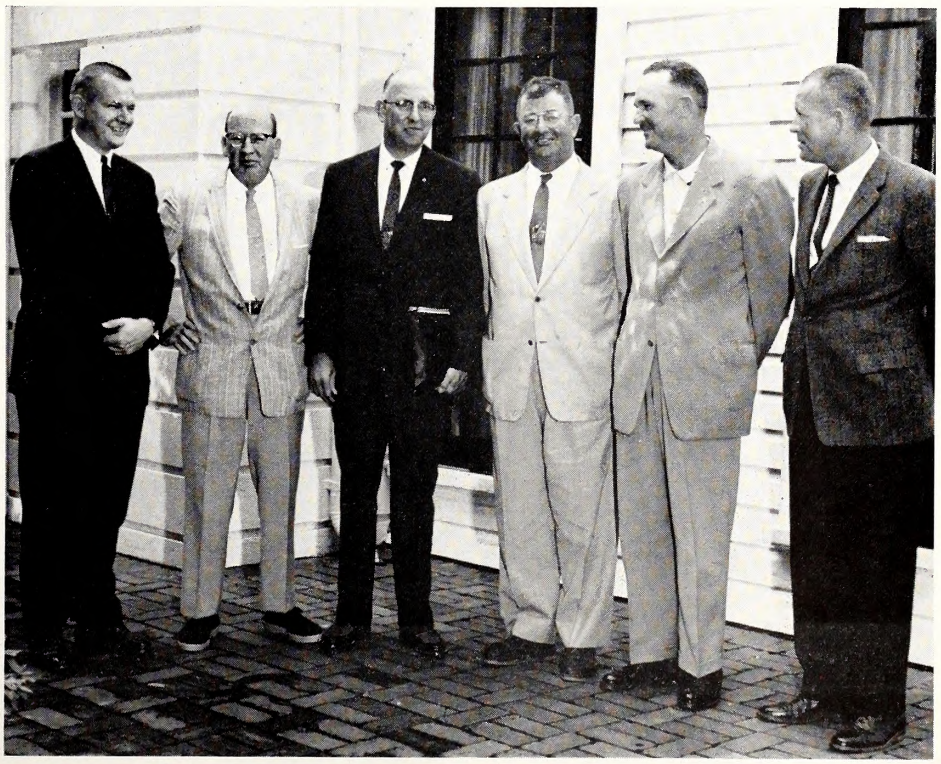
Following election of officers for the coming year (pictured below) the group selected Fontana Village as the site of its meeting in October 1960.



Wayne Hammill, left, member of the Mount Pleasant FFA Chapter, was awarded a $100 check for outstanding conservation work. With the Future Farmer winner is Bill Hamnett, Commission youth leader.

Tommy Reese, Federation president, poses with Phil Bracewell, president of the Catawba County club, winner of the coveted Governor's Award for the preceding year.

Officers for the coming year are, left-to-right, Tommy Reese, Hickory, president; Dr. George Heinitsh, Southern Pines, secretary; B. K. Lineberger, Hickory, treasurer; N. C. (Bud) Austin, Asheville, western vice-president; Dave L. Goforth, Greensboro, central vice-president, and Norman C. Perry, Colerain, vice-president for the eastern area. Most of the officers were re-elected.



Solving the Hunter-Farmer Problem

by Clyde P. Patton
Executive Director

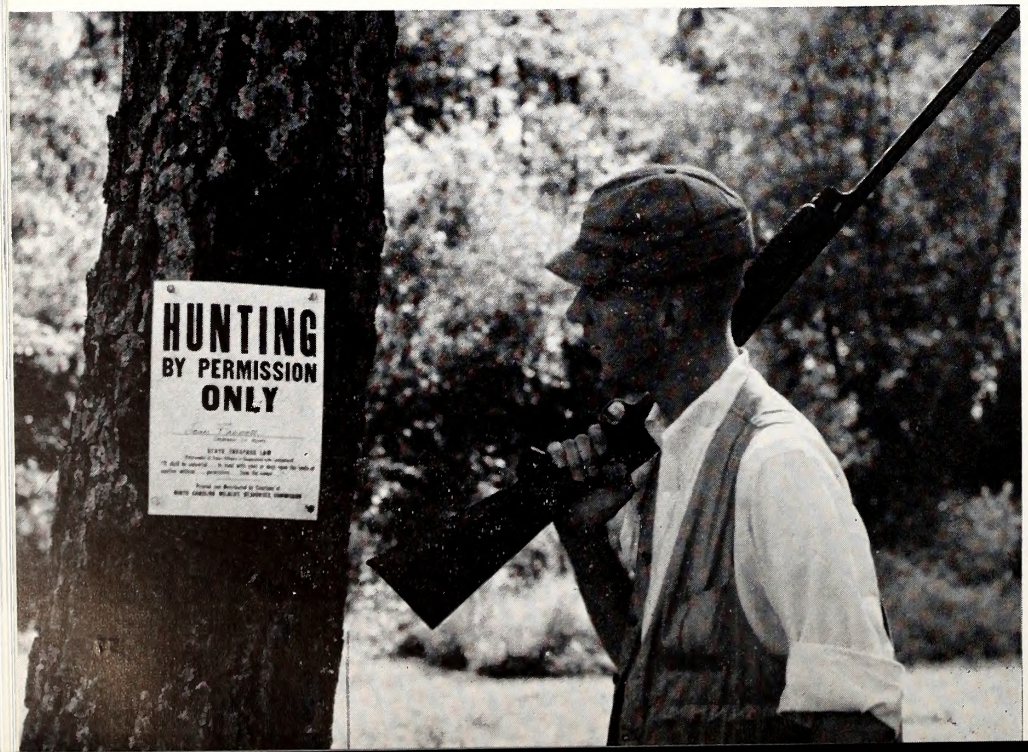
AS long as there are farmers and "city slickers" there will be a farmer-hunter problem. There are more and more hunters each year with less and less land on which to hunt. Part of the problem is being taken care of by the acquisition of public hunting grounds by State and Federal Governments. Even though large tracts of public shooting grounds have been and are being acquired, it would be impossible and impractical to set aside enough land to supply the hunters' demands

Such game as rabbits, squirrels and quail are by far the most popular to hunters, and these species are found almost exclusively on agricultural land. This means that most of our hunters depend on farm land—and farmers—for their hunting. The farmer-hunter problem arises out of the fact that too many hunters fail to show the common courtesy of asking permission to go on farm land to hunt. They trespass. They leave gates open, tear down fences, damage livestock and trample crops. It is only logical that farmers resent such behavior and defend themselves by posting their land with KEEP OUT signs.

Although North Carolina has its share of the farmer-sportsman controversy, the situation is not one-tenth as serious as it was about ten years ago. When the North Carolina Wildlife Resources Commission was peppered with requests from farmers for "posted" or "no trespassing" signs, the Commission designed a poster that has gone a long way toward removing, or at least alleviating, the situation.

In bold face type the signs read: HUNTING BY PERMISSION ONLY. Below these words is a space for the landowner's or his agent's name, and an extract of the State law prohibiting trespass by hunters. More than a million of these signs have been distributed free of charge to anyone requesting them. The only obligation on the part of the landowner is a statement as to the number of acres to be posted and the number of signs needed. This requirement is made only to keep requests for posters within reasonable bounds.

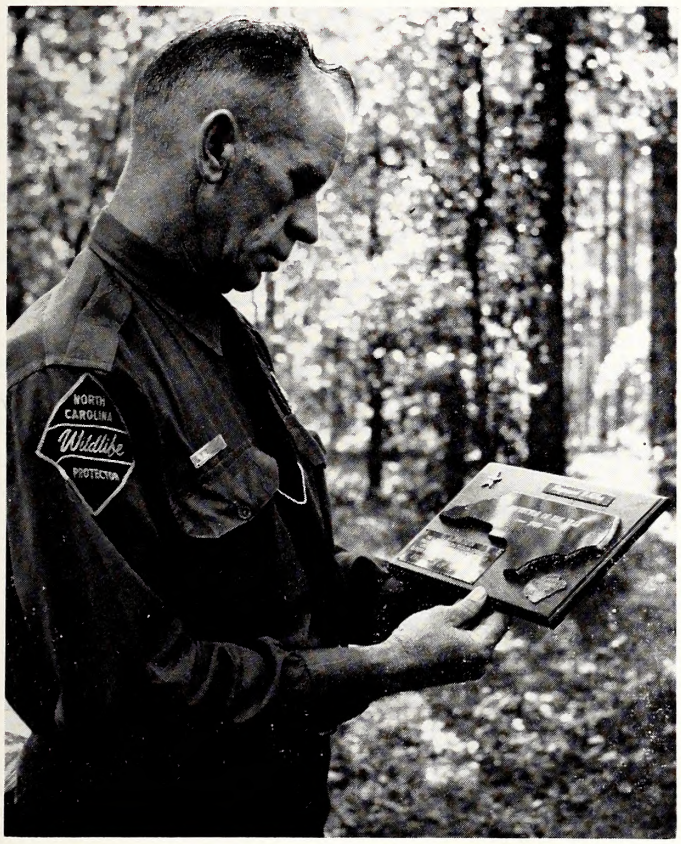
Photo by Jim Lee



Although these posters are only quasi-legal, they have been and continue to be extremely effective. They exert a psychological effect on the hunter, reminding him of the courtesy due a farmer in asking permission to hunt; an appeal, so to speak, to his sportsmanship. At the same time, the posters appeal to the farmer who is willing to allow hunting on his land, but who wants to know "who," "where," and for "what." This double-barreled psychology has the effect of making friends instead of enemies. Further, it has helped to encourage sportsmen to give farmers aid in developing their land for better hunting, and at the same time, for better agriculture through approved land management practices.

Simple posters like these are not the ultimate answer to the farmer-sportsman problem. More public shooting grounds are being acquired and developed. The Wildlife Commission furnishes millions of free wildlife habitat development seedlings, and tons of mixed annual seeds for wildlife food plantings. Thousands of squirrel nest boxes have been built and erected by various youth groups in cooperation with the Commission, who pays the bill. All of these things help to provide more game and more hunting. But the final answer still lies with the sportsman. When every hunter conducts himself in the field as he would as a guest in a farmer's home, the farmer-hunter problem will no longer exist.

RAYMOND Y. ALLEN HONORED AS WILDLIFE PROTECTOR OF THE YEAR



Raymond Y. Allen, Caswell County Wildlife Protector since 1948, was selected "Protector of the Year" by the North Carolina Wildlife Federation. He was awarded a plaque at their annual meeting at Pinehurst recently.

Allen was nominated by his fellow protectors in District 5, and final selection for the coveted honor was made by the Federation.

The wildlife protector was bron in neighboring Person County and is a graduate of Hurdle Mills High School. Following graduation in 1933 he was employed in Roxboro for several years before taking a position with the State Highway Commission. He left that job to work in a machine tool plant during the war, and then returned to the Highway Commission for three years before accepting an appointment as the Caswell County protector.

Allen is a resident of Leasburg in Caswell County, is married and has two teen-aged boys. He was nominated by other protectors in his district for his outstanding abilities in law enforcement and relations with the public.

The award is made each year by the Federation during their annual meeting, and the plaque becomes the property of the winner.

PROTECTOR OF THE MONTH

John O. Brown

Mecklenburg County Wildlife Protector John O. Brown was born on March 1, 1919 in Caldwell County, where he received his education. A veteran of World War II, he is married to the former Margaret Brooks of Lenoir.

Mr. Brown completed the Wildlife Protectors' Pre-Service Training School in August, 1951, and was employed as the Mecklenburg County Wildlife Protector on November 1, 1951. He has also completed two advanced training schools at the Institute of Government since 1951, and has served as First Aid Instructor in several other schools.

The Browns reside at 3200 Amity Road in Charlotte.

ENFORCEMENT RECORD FOR AUGUST

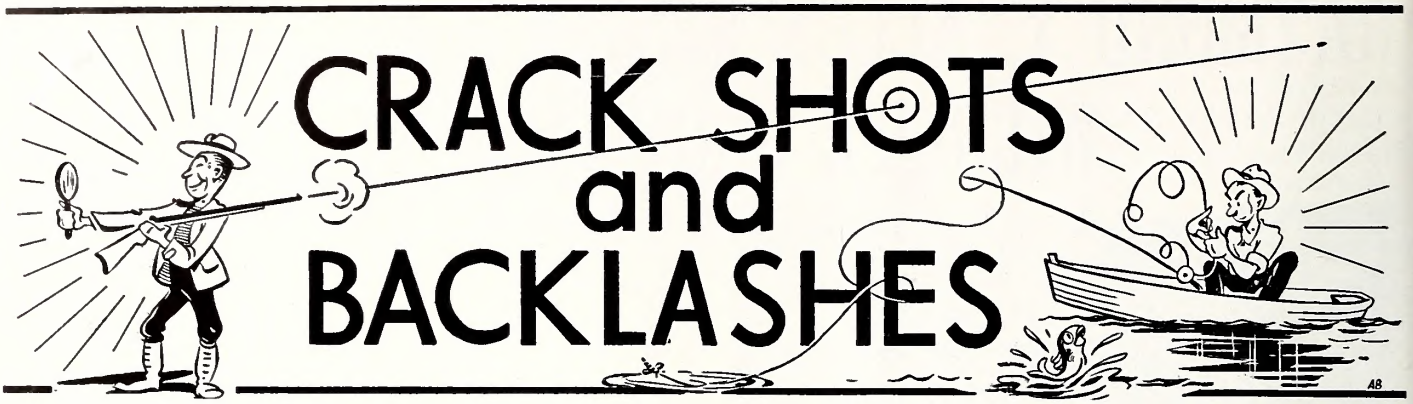
Persons checked	26,714
Total prosecutions	625
Total convictions	609
Total cases not guilty	11
Total cases nol prossed	5
Total fines collected	$2,910.55
Total costs collected	$4,718.00

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW

QUESTION: Is it unlawful to hunt squirrels with an unplugged shotgun?

ANSWER: The statutes of North Carolina make it "unlawful for any person to hunt, take, or kill any upland game birds, squirrels or rabbits with or by means of any automatic-loading or hand operated repeating shotgun capable of holding more than three shells." Federal regulations set forth the same requirement for taking migratory game birds. A word of caution here may prevent the reader from committing a violation which sometimes occurs. Certain types of shotguns, when plugged to hold only three of the magnum-size shells often used for hunting waterfowl, will hold *four* standard size shells. If such a gun is used with standard ammunition, it must be plugged so as to hold *only three* standard shells.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

During November the hunting season on about every upland game species except doves will be under way. November marks the opening of the waterfowl season—somewhat controversial this year—plus snipes and woodcock. The outlook for hunting is good except for ducks. The latter were plagued last spring by drought and frost in the northern nesting grounds.

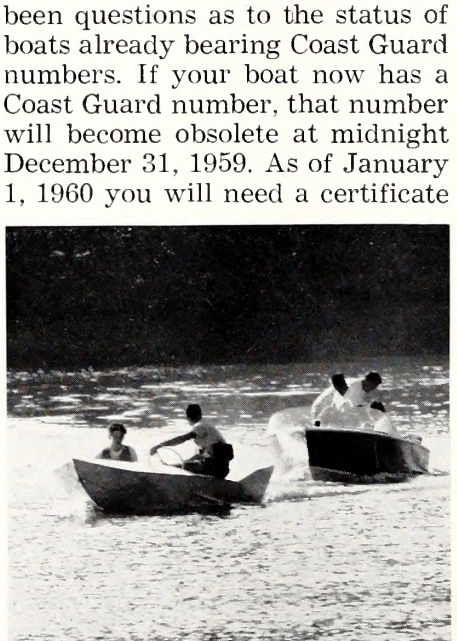
Along with the growth of interest in hunting and fishing and boating have sprung up hundreds of small industries in North Carolina. Now being manufactured in Tarheelia are items ranging in size from the tiniest trout fly to seagoing cabin cruisers.

One of the most unusual and successful industries to be born of sports afield is one in Charlotte. Back in 1939 Mack Ballard opened a small place on College Street and started making dog collars. This seems on the surface a small beginning, but when you consider that more money is spent on the national dog food bill each year than the total gate receipts for all spectator sports, you realize that a lot of people own a lot of dogs, and most dogs need collars, leashes, muzzles and a variety of other things more or less necessary.

With a staff of leather craftsmen, Ballard expanded to other leather goods that now include everything from dog collars and field boots to bullwhips and stock saddles. With expanded business came the need for more room. Mack now has a new place at 2121 North Independence Ave., where he has added a complete line of hunting and fishing equipment. But here is the really unique part of Ballard's industry. He sends catalogues far and wide, and gets mail order business from every country in the world except the U.S.S.R. Mack thinks that maybe the Russians would be interested in red dog collars or bullwhips; he doesn't deal in hammers and sickles. . .

* * * *

Since our August issue carried a verbatim reprint of the 1959 Boating Safety Act, there have been questions as to the status of boats already bearing Coast Guard numbers. If your boat now has a Coast Guard number, that number will become obsolete at midnight December 31, 1959. As of January 1, 1960 you will need a certificate



of registration and a number assigned by the Wildlife Resources Commission.

The Bonner Act, federal legislation bringing about the numbering of all boats over ten horsepower, provided that the Coast Guard establish a new numbering system for boats in states not having a state boating safety law by April 1, 1960. Almost exactly a year after the date the Bonner Act passed, someone discovered that the Coast Guard does not have funds necessary for taking over the new numbering functions (i.e., numbering boats over ten horsepower in states not having a boating safety law). The Coast Guard, however, will relinquish its numbering functions in North Carolina as of December 31, 1959. States not having laws implementing the federal law will have another year in which to do so. What North Carolina law enforcement officials will do with legally un-numbered boats from other states remains to be worked out. The Coast Guard will probably have some suggestions, and the matter will probably be clarified in Chapel Hill this month. All of North Carolina's wildlife protectors, responsible for enforcing the numbering and safety provisions of the 1959 Boating Safety Act, will go back to school at the Institute of Government for an intensive course of training in boats, boating safety and boating law.

* * * *

Beginning in 1960 this magazine will run a regular feature on boats and boating matters with particular emphasis on safety. You and your boating friends will be interested in this.

Rental Canoes

DEAR SIRS: My wife and I find great pleasure in going canoeing, but we have been unable to find a place in North Carolina where we can do this. We do not

have our own canoe, therefore, wherever we go we would have to rent one.

We have been from Morehead to Fontana looking for such a place. We went to Kerr Lake also, so as you can see we have covered much of the state in vain. I do hope you can tell us if there is such a place in North Carolina. L. RAND BAILEY, DURHAM.

We do not know of any boat liveries where canoes may be rented. Perhaps some of our readers can help.—Ed.

Special Privileges

DEAR SIRS: Are citizens of North Carolina over 65 required to buy a hunting and fishing license? I have never seen a comment on this in Wildlife and believe others are interested also. An answer and the latest regulations will be appreciated. JERRY LACELLE, SELMA.

Almost every time the legislature convenes legislation exempting persons over sixty-five from buying hunting or fishing licenses is introduced. Each time, as in 1959, it has failed. There are no exemptions made for persons in this age segment. For other exemptions see your hunting and fishing regulations.

Plug for the Old North State

DEAR SIRS: I have just finished reading the May issue of Wildlife In North Carolina. The striped bass article (Landlocked Dynamite) was the best yet on this great fish. Here in Maryland we are working to preserve our rockfish and are now restocking fresh water lakes with them. Corowingo Lake has been stocked and in the years ahead I believe that the striped bass will "take" in suitable sweet water impoundments. No greater or better-eating fish exists.

The great State of North Carolina is among the top five states in outdoor potential. Certainly no finer state exists on this planet for hunting, fishing, and kindred activities. North Carolina has everything! And in my all too brief stays in North Carolina I found the people friendly, the food superlative, and the fishing and scenery tops. North Carolina leaves nothing to be desired. Your magazine is wonderful. S. L. PRUITT, BALTIMORE, MARYLAND.

Thank you, sir!—from the bottoms of our Chamber of Commerce hearts!

Hunting on Father's License

DEAR SIRS: The hunting laws used to state that a boy under 16 years of age could hunt on his father's license if hunting with his father. Is this still the law or has it changed? I can't seem to find out. Could you have this information put in the Wildlife Magazine also. I have several friends that have asked me the same question. Thank you very kindly. GEORGE W. TERRELL, HAVELOCK.

The law has not been changed. Resident persons under sixteen may hunt with their parent's or guardian's license or without a license if in the company of a properly licensed parent or guardian.

Two freshmen students have their tuition at State College paid in full this year, with compliments of the N. C. Wildlife Federation. Left to right are Dr. Fred S. Barkalow, head of the Zoology Department; Dewey E. Howell, Goldsboro; Jimmy W. Mabe, Kernersville; and P. K. Gravely, Rocky Mount. Gravely is Chairman, Board of Trustees, N. C. Wildlife Federation Conservation Education Fund, which awarded the scholarships to the two youths who will major in wildlife.

Field Trial Dates Set

At its meeting at Hoffman during September the North Carolina Field Trials Association set up dates for field trials on the Sandhills Wildlife Management Area field trials course:

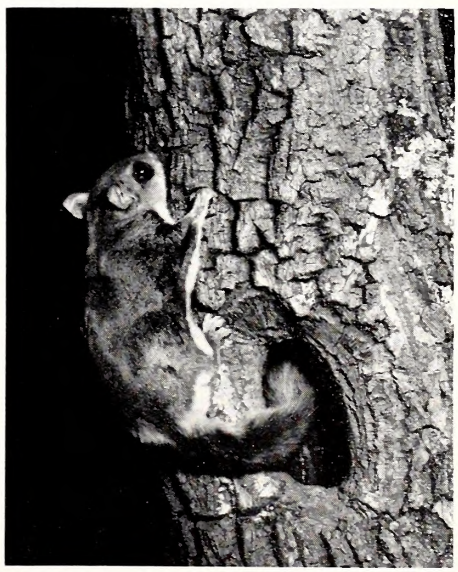
Central Carolina Field Trial, November 13-15
Tarheel Field Trial Club, November 22-24
N. C. Field Trial Association, March 11 until completed
N. C. Field Trial Association Shooting Dog Classic—first weekend after hunting seasons close

The Association extends an open invitation to all sportsmen to attend these trials. The Sandhills trial area is one of the best, if not the best, areas in the entire country according to dog handlers from throughout the country.

Flying Squirrel Problems

DEAR SIRS: I have flying squirrels in my house and out buildings, and would like for you to tell me how to get rid of them. DWIGHT CLOER, HIGH POINT.

Place an ordinary sulphur (fumigating) candle in a shallow pan, light it, and place it in the attic. The pan serves as a fire prevention device should the candle tip over. Flying squirrels can't



The flying squirrel is mainly an animal of the treetops, but sometimes makes a nuisance of himself in attics and garages. With legs spread to open the fold along his sides he can glide for many feet from a tree to the ground or to another perch.

stand the sulphur fumes, and will seek abode elsewhere.

BB Gun Suggestion

DEAR SIRS: My seven-year-old boy started asking for a BB rifle. Realizing he was too young to use one safely, I made him a proposition. If he and I would get one together and use it only for target practice, we would see about it. We did. I fixed him a cardboard box with styrofoam in front of it to pin the target to. We put foam rubber in back of the box and the shot can be used over and over.

We will be having a lot of fun these long winter evenings shooting at regular targets. When we finish reading Wildlife Magazine, we cut out appropriate pictures and shoot at these for a while. We never use pictures of anything other than game birds and animals. We use a small piece of masking tape to cover the hole the shot makes and use the same target over.

One word of caution. Let the boy win most of the time until he learns; then you'll wish you hadn't. RALPH ALDRIDGE, YANCEYVILLE.

Waterfowl Seasons

DEAR SIRS: My opinion again. My letter to Wildlife about December 1958, was mostly true I think, but rather hot or at least it must have been as it has never appeared in print. Anyway, I think the Wildlife Commission was very wise in taking a 50-day duck season with limit of 3 instead of 40-day season with limit of 4. Not allowing shooting before sunrise is a good duck service in my opinion. If the federal law did not allow shooting ducks until the sun was an hour high and until sunset it could give a 70-day season with 4 limit and not as many ducks would be killed as a 40-day 3 limit season, allowing shooting to start one-half hour before sunrise. In my opinion more ducks are killed between daybreak and 30 minutes after sunrise than the remainder of the day.

If all the sportsmen buy Duck Stamps perhaps there will be more ducks and longer seasons and increased limits in the future. I think all fines from game law violation convictions should go to promote game. Keeping hunters well posted on hunting laws, both Federal and State makes your magazine more interesting to hunters. I have taken Wildlife for many years and also subscribe to others, and guess I'll continue to take it as long as I live unless it gets too sorry. GEO. F. CARROLL, LELAND.

Numerous comments have been heard over the drastic reduction in bag and season limits for migratory ducks this year. In a memorandum to U. S. Fish and Wildlife Service employees in the South, Regional Director Walter Gresh explained the reasons for the year's regulations. The following questions and answers were taken from this memo.

Why were duck seasons and/or bag limits shortened this year? Because duck production was a near failure, and a below-average fall flight of ducks is expected. This was caused by the following: (1) Widespread drought which reduced the number of potholes by 70 per cent over broad areas; (2) generally a decline in habitat of the remaining areas, along with widespread burning of nesting cover; (3) elimination of most over-water cover—this is required by diving ducks and coots which nest over water; (4) heavy predation in the remaining cover; (5) abnormally late season in the Far North.

When conditions become unfavorable, the birds often lose their breeding urge and don't even try to produce young.

Why was the season on geese permitted to run longer than the time on ducks? A normal flight of geese is expected this fall; therefore there is no justification for shortening the goose season in 1959-60. Goose breeding grounds lie farther to the north than those for ducks and they were less affected by the drought and late spring.

Although the Fish and Wildlife Service recognized that a separate season would mean a possible enforcement problem, several factors caused them to decide on more days for goose hunting. Important is the fact that goose populations on several areas may have reached the carrying capacity of the range —exceeding this capacity could mean crop damage on nearby farms.

What is the reason for the added restrictions on canvasbacks, redheads and ruddy ducks? First, these three species are over-water nesters, meaning that they build their nests in vegetation growing above the water. The drought has meant that water levels have lowered so much that much of this vegetation has been stranded some distance from the water's edge—as a result, there have been nesting failures or no nesting at all in some areas.

Summer home of some of North Carolina's waterfowl is the watery expanse of James Bay, Canada, where winter success of waterfowl hunters is dictated by nesting.

Photo by Dr. Gene Hester

Second, these species are less abundant than some of the more common dabbling ducks, yet they have been hunted just as relentlessly and often killed with more ease than such species as mallards and baldpates. Band recovery rates on canvasbacks and redheads are among the highest of any waterfowl.

Last year bag limits on these birds were reduced to two ducks, singly or in combination. In spite of this birds have continued to decrease—thus the drastic 1959 regulations allowing only one of the three.

Why are two wood ducks permitted in the daily bag and possession limit in the Atlantic Flyway, while only one is permitted in the other flyways? All available information points to an improved wood duck population in the Mississippi and Atlantic Flyways, and especially so in the Atlantic.

In an effort to learn more about wood ducks, a banding program in both the Atlantic and Mississippi Flyways is now under way and will continue at least through 1960. Banding information cannot be obtained unless the birds are shot; hence, it is obvious that such a program is timely. Also, by banding at this time a measure may be made of the effects of increasing the bag limit in the Atlantic Flyways, and comparisons will be available with the results where a one-per-day limit is the rule.

If the season's frameworks had to be cut, why weren't the cuts made altogether at the first of the season so we in the South could shoot until January 15? While the best hunting in the deep South occurs in January because of heavy rainfall and flooded areas, shooting is best in early fall in the northern states. Putting off the season there could result in freezing weather stopping their hunting. This occurs often enough even with past framework dates. In fairness to *all* hunters, the framework was lessened by seven days at each end.

Why will hunters be denied the opportunity to hunt ducks one-half hour before sunrise? The objective of this regulation is to save ducks, particularly divers and wood ducks. The first half hour of the day is the major period of activity for many waterfowl. The light is frequently bad and even good hunters may shoot protected species which they would pass up during better light conditions.

In addition, crippling losses are known to be higher early in the morning and late in the evening because of poor light conditions and hunters are more concerned with shooting than chasing cripples.

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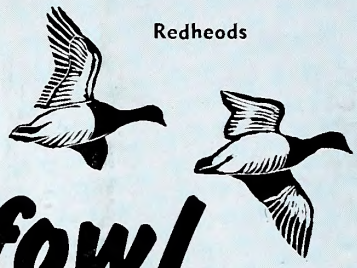
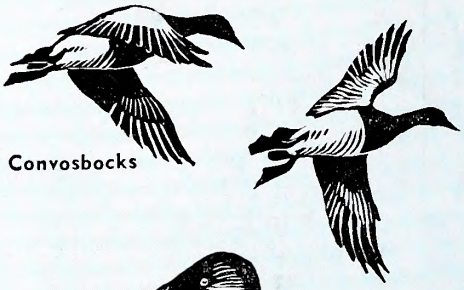
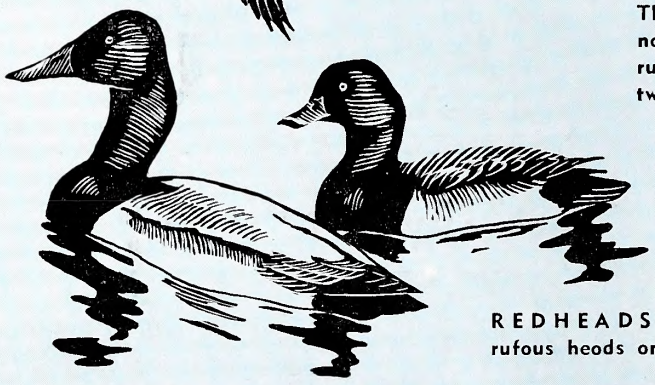


Redheads



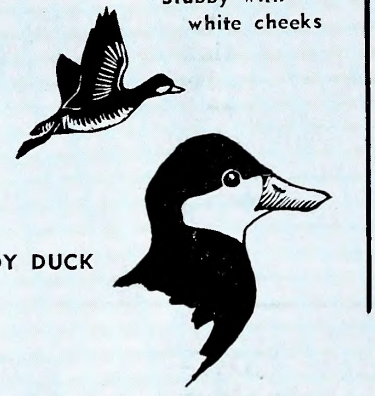
Convosbocks

The doily bog ond or possession limit moy not include more thon one redheod or one ruddy duck ond one hooded mergonser ond two wood ducks.



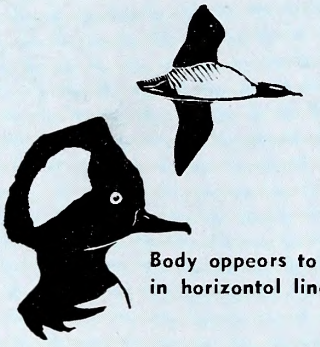
REDHEADS hove rounded rufous heods ond dork bocks

CANVASBACKS moy be distinguished by the sloping profile, light bock ond rufous heod



Stubby with white cheeks

RUDDY DUCK

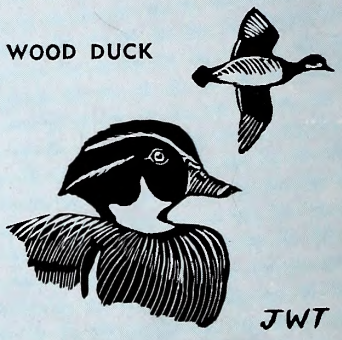


Body oppeors to fly in horizontol line

HOODED MERGANSER

Bill downword in flight

WOOD DUCK



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Wildlife

DECEMBER-1959

TEN CENTS

in north carolina

Photo of rabbit track in snow by Jack Dermid

Merry Christmas

. . . and best wishes for many happy days of hunting and fishing during the new year from the Wildlife Resources Commission and its entire staff.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

The white-tailed deer, North Carolina's most magnificent game animal, is a creature born to the deep forests. But you may find him within sight of farm houses, occasionally grazing with domestic cattle in pastures. A problem since the beginning of colonization, the deer was so coveted by settlers that he was the subject of North Carolina's first game laws.

With careful management the outlook for white-tail is good—Tarheel hunters will enjoy their third antlerless deer seasons this month. December's cover is the work of artist Bill Ballard.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Photos by Jack Dermid

The Best Way To Manage Fish And Game

by Ira N. Gabrielson
President, Wildlife Management Institute
Reprinted from OUTDOOR AMERICA

A leading wildlife authority states his belief that the Commission system of fish and game management—in use in North Carolina—is the best method yet devised.

ANY man who's belonged to the Izaak Walton League any length of time has run smack up against one of conservation's most persistent controversies—where does game and fish management fit into the structure of state government?

The Wildlife Management Institute has, through the years, had the opportunity to study the various systems of game and fish management in use throughout the country today. And considering them all, it is still our distinct belief that the best system of administration yet devised approaches closely the Model Game Law developed by a committee of the International Association of Game, Fish and Conservation Commissioners in the early 1930's, with the aid and continuing support of the Izaak Walton League.

Briefly, here's what it is:

The system provides for a commission with plenty of power, power over policy and budget, with an administrator selected by the commission

but free to carry out the policies and program of the commission.

The Commission system has its faults, all right, but these pale before the flaws in the present strong tendency toward establishing an all-inclusive and all-embracing department of conservation or natural resources.

The natural resources department idea is generally supported by those who believe in a strong, central government completely under the thumb of the governor, including some theory-blinded students of government as well as partisan politicians; and every budget officer who chafes at having his operations restricted by earmarked funds.

Among the reasons usually advanced for advocating this type of administration are:

1. It would centralize administration and give the governor control of the management of the state government and of the budget.
2. It would eliminate earmarked funds.
3. It would provide better integration of resource administration.

Should the Governor Control?

Most of us interested in fish and game will not accept the theory that the governor should have complete control of these natural resources. From a political standpoint and from his ability to use funds and positions to influence votes, I can see the logic of it from a politician's standpoint. But, for the good of the resources, it is the worst thing that could happen. Far from the governor having control, those states which have usually had the best administration of wildlife resources are those which are the furtherest *removed* from the governor's control.

The elimination of earmarked funds (notably game and fish funds) is just about always an unspoken objective of the politicians and sometimes of those interested in other resources who advocate departments of conservation. Even in the old days when state fish and game departments' incomes were small, the funds and positions were used for the payment of political debts. As license revenues have grown to their present proportions under the programs in the various states, the desire of many politicians to get control of these funds increases in direct proportion to the total amount available for use.

Theoretically, putting management of all natural resources under one roof sounds good. But as a matter of cold, practical operation, wherever minerals and oil have been placed in an overall department, it has almost invariably resulted in the complete domination of the department by powerful commercial interests and the sweeping aside of the interests of the general public when there was any conflict with the desires of the oil or mineral people. In two cases within recent years, such departments have been established only to have fish and game pulled out of the overall department because of the sportsmen's dislike of the results of such administration.

Where departments of conservation do function fairly well, it will be found that the best ones are headed by a commission of citizens who administer the resources entrusted to them just as the more common fish and game commissions do.

Fish and game, forests, and parks can be administered with relatively little conflict and with somewhat better integration under one administration, if they are not subject to the changing whims of political fortune.

In many states where there is no integration officially, we have observed good and close working relations between the fish and game, forestry, parks, soil conservation, and various other resource administrative agencies. Where there is no real desire to work together, something more than an artificial organization structure is needed to improve conditions.

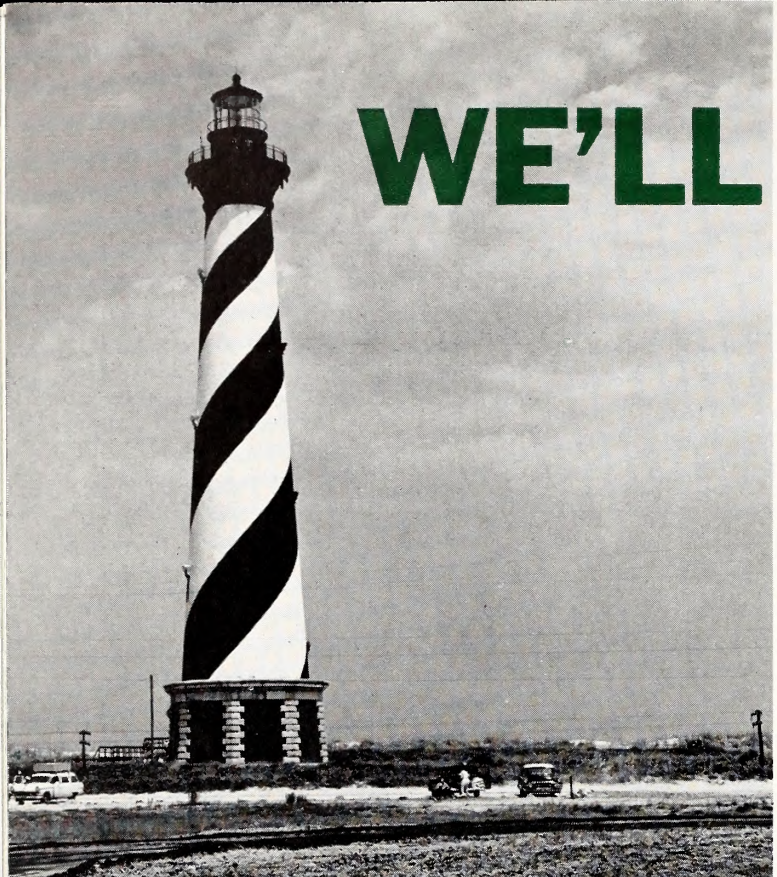
Use Proved System

Let me close by saying again that if the field is surveyed, the best average management of the wildlife resources has been secured under the Commission type of organization. It has been proven and improved by various ideas developed in many states and can now be expected to do a reasonably good job. Perhaps a better way will be devised, but until it is, I would prefer to stick with the one that has given the best results.

Under the Commission system, sportsmen are assured that their license money is spent to produce better hunting and fishing.

WE'LL ROUGH IT!

by Cam MacRae



Photos by Jim Lee

WE'LL rough it! Yessir, we'll live right on the beach and battle the wind, sand and sun right on the tip of Cape Hatteras." Dr. Raven's spirited words resembled another great speech — blood, sweat and tears. Both speeches were appropriate.

The good doctor had organized our two-family expedition for a week of camping on Cape Hatteras. He had assured the ladies that we would take with us all the comforts of home. And from the size of the assembled equipment, the ladies almost believed him. We had sufficient canvas to make sails for the Queen Mary, and enough equipment to sink her. There were enough tent poles to build a stockade around Texas.

The afternoon before departure was spent on a test run erecting the new umbrella tent. Assisted by Briar Raven, Eagle Scout, five of us succeeded only in enveloping ourselves in 320 square feet of canvas, frantically trying to find a way out. This done, we gave up. We decided we knew how *not* to do it and therefore could only do it right when we got to the beach.

While packing, the problem arose of getting two pounds in a one-pound sack, as it were. We had twice as much baggage as we had trailer. The hour was 1:30 a.m. "Everybody get a good night's rest," the doctor advised.

Six hours later we roared off like a herd of turtles, counting eleven souls aboard (we had even picked up a neighbor's youngster), the car and station wagon, with trailer wagging its tail behind.

Five miles out the first youngster wanted a drink of water. Stop. Twelve miles out, the reverse. Stop. Asheboro for breakfast. With egg on cheeks, molasses in hair, we left the harassed waitress picking up the debris. Raleigh. Gas and a road map. Good gosh! Is that Hatteras way out there or Bermuda? Is it wide enough for our tents? We were committed. We had reached the Point of No Return.

The State had thoughtfully provided picnic grounds for the ants. We divided our lunch with some Washington County monsters which we first identified as tailless squirrels. Later we decided they were *Picnicus giganticus,* ants peculiar to picnic grounds.

At Sandy Point, outside Columbia, with time running short, we witnessed the poetic beauty of the stern of a departing ferry boat. As time marched relentlessly on we began to realize that a crash program in tent raising would be necessary to erect three tents before dark. We proved quite capable of the crash part of it.

Another ferry across Oregon Inlet. Dr. Raven, with camera pointed skyward, eye constantly on viewfinder, clicked away at the hundreds of gulls circling overhead. The first of these pictures were good. The others seem obscured, apparently from something dropping on the lens.

We finally sighted the great lighthouse which guides mariners to safety past the shoals. Using it as a guide, and since there is only one road, we navigated to the very tip of Cape Hatteras. Here is one of the many Mission 66 recreation sites of the National Park Service, marked for completion in 1966. Within the camping area the situation involves only the selection of a specific camp site. There were eleven of us and only nine different preferences, two of us being too tired to argue.

Soon unidentified parcels littered the sand in wild profusion. The trek over the sand dunes proceeded like a line of coolies evacuating Shanghai. Briar Raven, with a flattop haircut, balanced his load on his head, no hands. The deep sand dragged at the feet, Man! Somebody could make a fortune there renting out camels.

We placed the tent paraphernalia methodically on the beach, each piece in its place. But there was a place where there was no piece. This was where the umbrella part was supposed to be. It was back in Concord. With time running drastically short we abandoned that tent and began on another. That

one was all there, with some extra parts we couldn't identify, but no extra umbrella.

Night, with its myriad stars above, bathed us in stygian darkness. This is more poetic than practical. Being prepared for any emergency we sought out our gasoline lanterns, being part of all the comforts of home. These lanterns function fine when ignited with matches. Our matches had been carefully stored away to avoid wetting—in one of 51 parcels litterbugging the beach. We would be lucky to find any of the parcels—but the right one?

At this time the children wailed pitifully that they were hungry. Frustration set in.

"Matches! I found the matches!" Miss Cedie, that dear child, had found Parcel 51. Like a shot of adrenalin the light brought out new vigor. So, having held trial tent manuevers the afternoon before, we now succeeded better than before. We couldn't get out. Someone had helpfully zipped up the opening and we couldn't find it in the dark interior especially since we didn't know it was zipped. We had the center pole up, but needed the four corner poles which were outside. Our calm physician very nearly cut a hole in the tent to poke them through when, to our consternation, nine-year-old Pete appeared inside. He was able to find his way back out, so we followed him. This was the breakthrough we needed.

Dr. Raven, perspiration streaming, chest heaving, eyes glowing with pride, looked at his wife and extended his arm toward the tent like Nebuchadnezzar presenting the Hanging Gardens to his wife, silently beamed. The other tents could wait until tomorrow.

"Who can number the sand of the sea, and the drops of rain?" We had occasion to familiarize ourselves with this lesson. Since the Park Service has begun development of Hatteras more and more people are taking advantage of the opportunity to get away from it all. You meet nice people here. We were much impressed with a couple and daughter from Pittsburgh and invited them to dinner—dinner in a tent at Hatteras. That required raw courage on the part of Buff Raven, the hostess.

Since I had had six courses in meteorology, I was consulted on the weather. On oath, and staking my reputation on it, I predicted perfect weather. Preparations proceeded. Dr. Raven, the chef, started a roaring inferno in his grill, downwind. We had special steaks carefully tended all the way from home. Everyone was dressed for dinner.

"How do you want your steaks?" the chef called out. We gave detailed instructions. Fourteen steaks sizzled on the grill. A gust of wind sifted sand on the preparations; dark looks were turned my way, against the darker background of a large cloud. The wind had shifted from north to south. A few red hot coals blew through the dining area.

"Don't worry. It's just the Merry Southwind saying goodnight," I assured everyone. By the time the steaks were served the Merry Southwind was blowing forty knots.

Smiling politely our guests held their plates with one hand and their steaks with the other. Sand mingled with beef, with tea, with teeth, with everything. The wind increased.

"Grab the tarpaulin." All hands turned to. "Half of you grab the tent!" It was leaning and flapping too. "Look out! It's going to rain!" The last word was a gurgle as a sheet of water smote us. The tempest was on. Buff yelled something about the weather at me. It was mercifully muffled by the rain.

The tent was crowded. Our visitor from Pittsburgh huddled with the men in the lee outside the tent. Water streaming over him, his dripping tie staining his shirt, he shouted, "I certainly did have a nice. . . ." but he caught himself in time. "Anyway, it was different," he said as he struggled toward his tent, followed by his daughter and wife.

Several days later the Weather Bureau issued a hurricane warning. We wondered what was the difference between a hurricane and our dinner party, but decided to pull up the remaining stakes and return to civilization, far, far to the west.

Our luck was bound to change. We made it to Raleigh straightway, with the only untoward incident, again involving a ferry. We ran out of gas at the head of a long line of refugees from the approaching storm. Cars behind us blew their horns. To complete the beautiful symphony with a soprano scream the ferry captain joined the chorus with the whistle. They say drawbridges on the Inland Waterway were raised from Norfolk to Morehead City, expecting a battleship.

In Raleigh we were welcomed at the home of Dr. Raven's mother. This kind lady, recognizing our bedraggled condition, welcomed us warmly. She cautioned us, however, before entering the house to shake ourselves well.

Back in Concord the next day we rolled to a stop in our host's driveway. Quoth Dr. Raven, "Nevermore!"

Wachovia's Forests Didn't Stop The Moravians

Part II

By Chester S. Davis

Reprinted from the Winston-Salem Journal & Sentinel

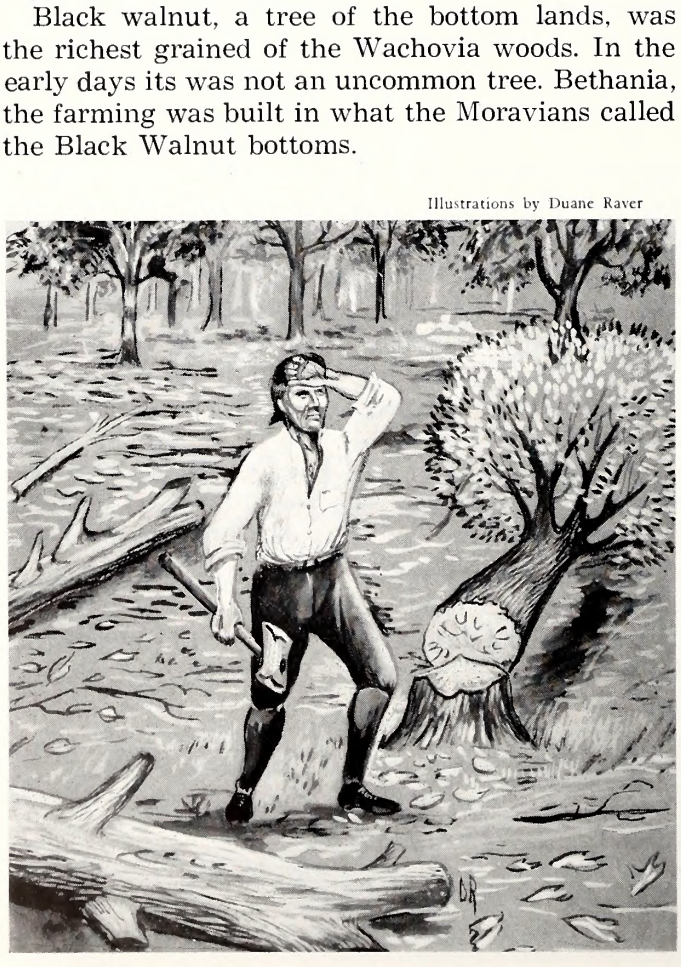
WE customarily think of the Moravians as a townspeople and that they were. But in Wachovia they built their towns from a forest and we sometimes overlook their dependence on that forest.

When they came into the Yadkin Valley in the late fall of 1753 they found that the hickory was the most common tree. It provided them with their finest fire wood. From the nuts they got an oil rich food and they crushed the hickory hulls with alum and made a strong yellow dye.

The stick-straight yellow poplar, with its soft but even grained wood, provided fine boards for their buildings. "Often four or five logs for planks," they reported.

Black walnut, a tree of the bottom lands, was the richest grained of the Wachovia woods. In the early days its was not an uncommon tree. Bethania, the farming was built in what the Moravians called the Black Walnut bottoms.

Illustrations by Duane Raver



Coffee Substitute

The chestnut, another common tree, was valuable for its mast which men ate and also used to fatten hogs and even diced and dried and made-do as a substitute for coffee. This easily split and weather-resistant wood was favored for fence rails and for shakes they used to shingle their roofs.

The baker preferred ash wood for his oven and the wagon maker prized ash because it was strong and turned well on a lathe. It was commonly thought that ash kept snakes away.

In the late Winter, when the sap began to rise, the Brothers tapped the maple and boiled sugar. This custom, however, did not last. After 1764 it was cheaper to buy sugar imported from the West Indies. For this sugar, as for the other things they could not produce, they traded deer skins and the products of their craftsmen.

There were a wide variety of oaks in Wachovia and each had its special uses; (white oak best for mast since the acorns were sweet and favored by the potter for his kiln,) post oak (a good wagon wood,) black oak (used, along with white oak, in building), Spanish oak (its sap, tapped in the spring, was used to make vinegar) and willow oak which was sought by the tanner for its acid bark.

Beech Trees

Red beech, a tree of the valleys, was preferred by the distiller for his fires and the cooper sought the water beech which drew well beneath his cutting knife.

They made baskets from the creek-side willows and they used the shredded bark of the pap-paw for cord. The bark of the alder, and the wood of the sumac bush were sources of dye. From the berries of the forest they made wine and, until they established their own orchards, they relied on the persimmon, wild plum, the black haw and the wild cherry for fruit. They were astonished that in the Blue mountains, as Spangenberg said, "Many hundreds of thousands of wild apple trees, crab apples . . ."green wild.

The pines, of course, were important to them in making fine, flat boards. They looked also to the

sourwood trees and their visitors, the wild bee.

Drugs From Forest

In time they established an apothecary's shop in Bethabara. But in the first days the floor of the forest around them provided them with their drugs.

The snake roots were used to purify the blood and as an antidote for venom. Tea made from the leaves of the holly tree was given for fevers. Milk weed was used to treat pleurisy and squawsweed was a specific for rheumatism.

For fresh wounds they used the carpenter leaf and for open wounds they bound on the leaves of the night shade. Water cress (also calves foot root) was rated good for lung trouble and a tea made of maidens hair fern was used to treat coughs.

The pith of the bullrush provided them with a wick for their oil lamps and they purged their horses with a dose made from the May Apple.

Later, when Dr. Kalberlahn had planted an herb garden, the Moravians came to rely less on the forest. But in the early years that reliance was more of a part of the Moravian story than most of us have appreciated.

Lack of Building Stone

Curiously, the Moravians were disappointed by the lack of the building stone in Wachovia. "Even in the mountains," Spangenberg said, "there is not one tenth as much stone as we find everywhere in Pennsylvania."

Sometimes, perhaps for the sporting climb, they went to Pilot Mountain in search of whet stones. Brothers Ellwein and Gummern climbed the pinnacle of Pilot Mountain in April, 1763. Most often, however, the brethren got their sharpening stones from "whet stone hill" which was located no more than three miles from Bethabara.

Although they knew of traces of silver and lead in Wachovia, the Moravians did not mine. Except for clay and the quarrying of building stone they did not dig into their land.

Put Clays to Work

But they found excellent clays near all their towns and they soon made building brick, earthenware, tile for their roofs (fearing fire the Moravians distrusted wooden shingles) and fine tile for their most ingenious and effective tile stoves. On the day the kilns were opened neighbors flocked to Wachovia to buy jugs, plates, platters and the like by the wagon load.

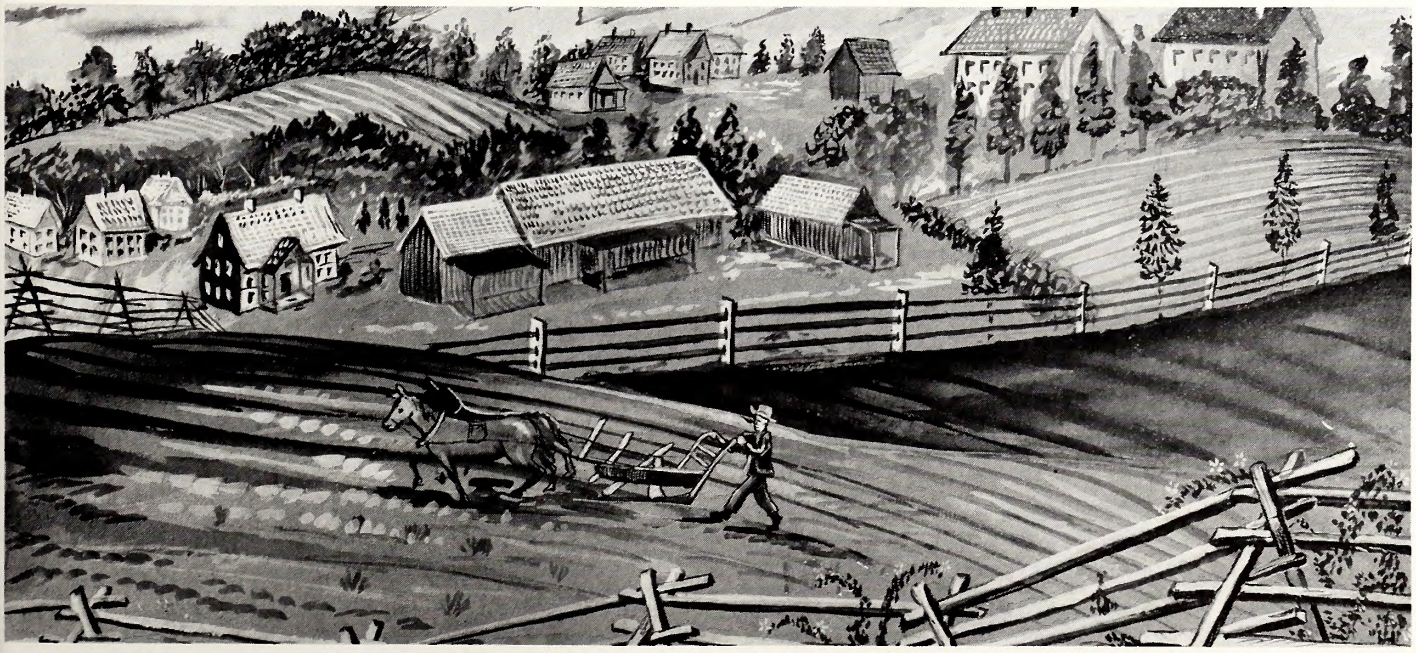
They were handicapped, of course, by many lacks. From the first they imported salt, sugar, coffee, glass and, until their smithy was built, nails. One of the most nagging lacks was the absence of lime in Wachovia. Because of that shortage they were compelled to build with boards where they would have preferred to have used plaster. Oftentimes their wagons, returning from the coastal towns, were loaded with sea shells they burned to obtain lime.

In their organized manner, a manner colored by their European background, the Moravians prized the forest and the wealth it provided them. Even in the early days one Brother was appointed as forester, and he controlled the cutting of the trees on a selective basis.

Two centuries ago on the American frontier such conservation was unheard of. To the first settlers the forest was an enemy to be pushed back and destroyed. But, to the Moravians the forest was a friend and they used the forest well and profited in that use.

Next month: Early Settlers Faced a Game Shortage

The Moravians built their towns from the forest. Below is a copy of an early view of Salem.



NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Booklet on Wild Boar Available

The Game Division of the Wildlife Resources Commission has published a 30-page pamphlet on the European wild boar in North Carolina. The booklet, available for free distribution (while the supply lasts) is a highly readable adaptation of a Master of Science degree thesis by Perry Jones. It contains information on the description, history, habits and management of the wild boar, and has an interesting section on boar hounds.

1960 Fishing Regulations Ready January 1

The 1960 fresh-water fishing regulations are in the process of being published, and will be in the hands of fishing license dealers for distribution January 1. The only major change in the 1960 rules as compared with the present regulations permits a fish possession limit of a three-day catch instead of two. The Wildlife Commission advises that state and county fishing licenses expire at midnight, December 31.

Boating Safety Act Effective January 1

Effective January 1 persons having boats powered by more than ten horsepower will be required to register them with the Motorboat Registration Section, Wildlife Resources Commission, Raleigh, N. C. The Commission is receiving applications for registration, and by press time had already received nearly a thousand applications. Machinery for processing registration certificates is expected to be installed in December, and certificates of registration will be issued as soon as possible after January 1. Boat owners are requested to not become impatient if there is some delay in issuing certificates due to the newness of the program.

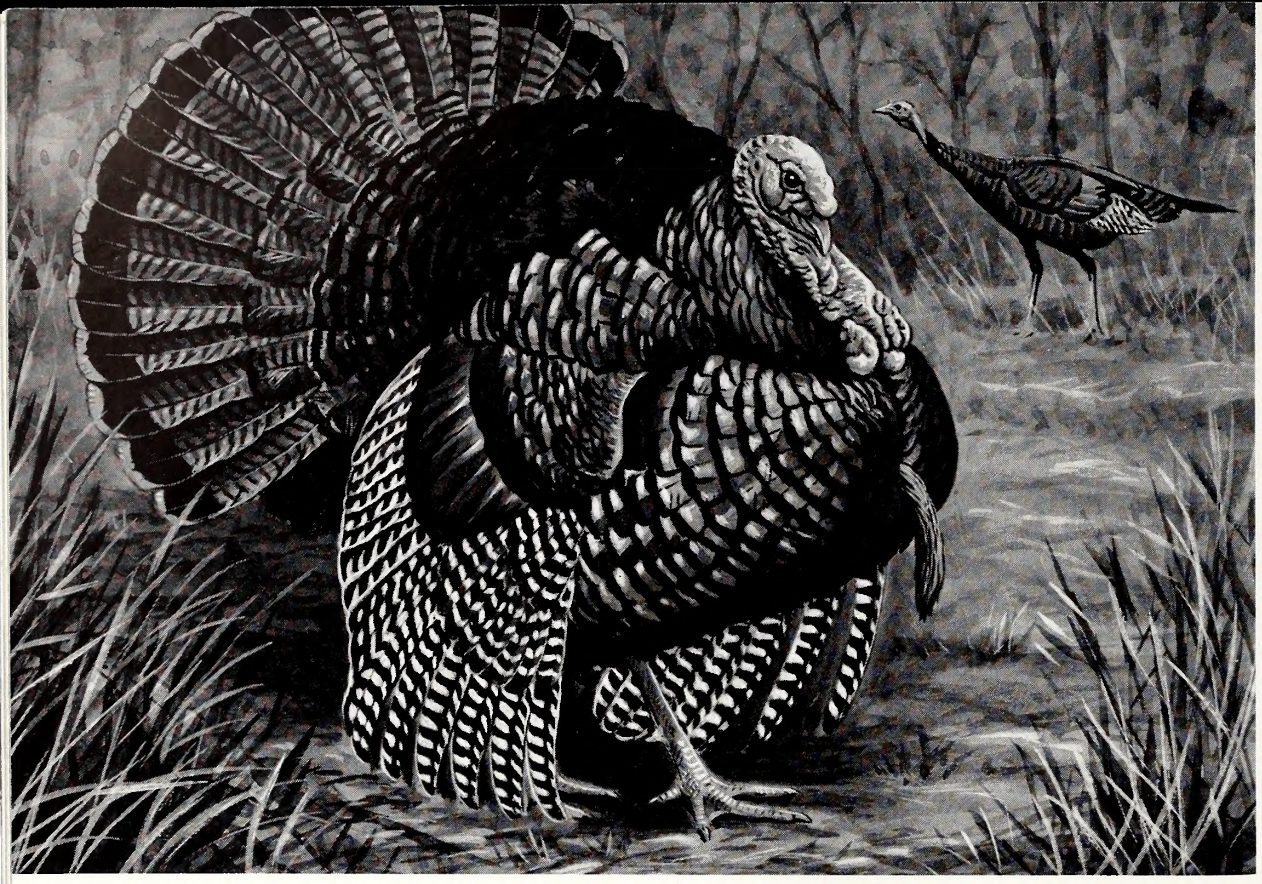
Wildlife in North Carolina Tops 70,000 Circulation

With a subscription sales campaign carried on by employees of the Wildlife Resources Commission Wildlife now has a total circulation of more than 70,000 copies per month. Final figures on the campaign and campaign winners will be announced in the January, 1960 issue. The largest single order for subscriptions came from the Drexel Furniture Company, Hickory. The Company purchased a total of 2,015 subscriptions for employees having served a year or more with the firm. Sale of subscriptions as Christmas gifts is expected to reach an all-time high this year.

The Wild Turkey Through the Year

Text by Don Hankla

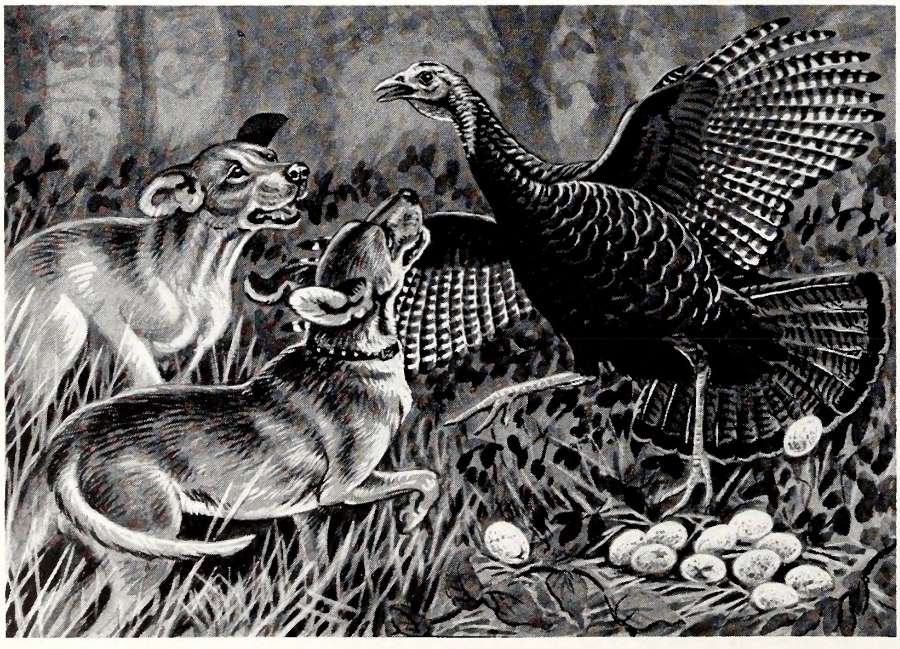
Illustrations by Wallace Hughes



Beginning in early February the adult tom turkey starts his strutting and gobbling. This magnificent display of feathers is part of the mating ritual put on for the benefit of the hens. An adult gobbler may have four or five hens in his harem—which he then ignores after their nesting begins.

The

The turkey's battle for survival begins before hatching. Nests are destroyed by plowing, mowing, and free-ranging dogs and cats. Unlike the bobwhite, a hen turkey will not nest again during a season if her first nest is broken up.



With no help from the gobbler, young
depend on their mother or adopted h
protection and food. The poults eat wil

Adequate nesting cover is a must for the wild turkey. Most nests are made with dead grass and leaves, located at the edge of clearings or on cutover land near trails and water.

urkey Through the Year

WILD turkey, greatest challenge to hunter and game biologist, once were abundant over most of North Carolina. Today scattered flocks hold their own against the tide of civilization, but nowhere is the picture bright for North America's most coveted game bird.

Clearing of wooded areas in the Piedmont and Coastal Plain reduced habitable turkey range following settlement, and the chestnut blight of the early Twentieth Century made life difficult for the majestic bird in the mountains.

Today the surviving flocks are concentrated in eastern and southern river bottom land and in upland areas of the Piedmont where mast-producing trees remain.

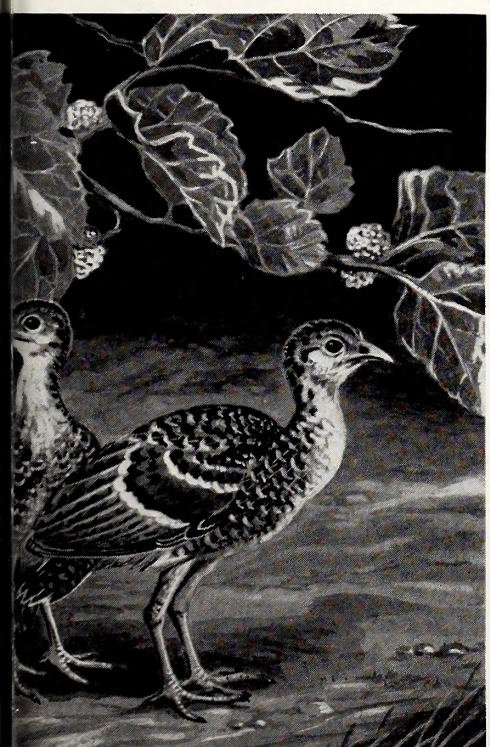
What does the future hold? The Wildlife Commission has three wildlife management areas where turkey populations are better than average. Intensive management has sustained the flocks and has produced a surplus that might be removed for stocking in suitable localities.

Areas designated for stocking are wildlife management areas where the Commission has complete control and can provide

(Continued on next page)

Insects, various wild fruits, and seeds of annual and perennial weeds and grasses make up the diet of young and adult turkeys during spring, summer and fall. Ladino clover, grasses, and mast from various hardwoods provide staple winter diets.

insects during the spring. These youngsters shown beside a blackberry vine, one of the ortant sources of food during the spring.



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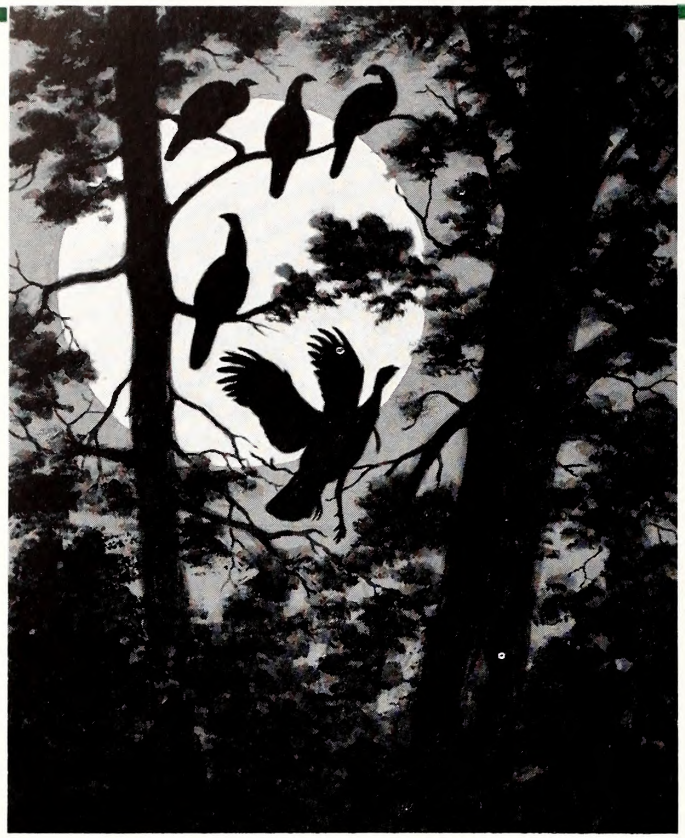


The Wild Turkey
Through the Year

protection from poaching. On these areas supplemental food plantings provide patches where the birds can feed in relative safety.

Since 1952 the Commission has trapped and transplanted 58 wild turkeys for release on wildlife management areas in Burke, Haywood, Mitchell and Wilkes counties. Following these releases several flocks of young birds have been observed, indicating that this method has been successful.

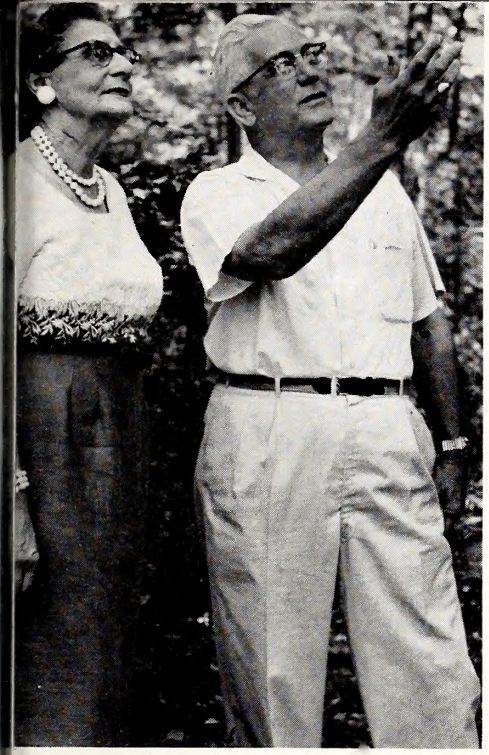
Although it is too early to predict a come-back for the wild turkey, game biologists think that if the bird is given protection from poachers and some help with habitat problems of food and cover, the wild turkey could return to many of the timbered areas where he once strutted and gobbled. Only the efforts of biologists and landowners, coupled with the passage of time, will tell.

LEFT: Turkeys roost for the night in trees some distance from their feeding areas. The gobbler leads the group and selects the tree at dusk. BELOW: Successful hunters use dogs to flush and scatter flocks. The hunter then hides in a blind and uses a call to attract his bird, talking the bird into range with a mouth or hand caller. Thus the turkey's natural inclination to regroup in a flock aids the skillful hunter.

Mary Atkinson Girl Scout Camp

A Gift That Will Live Forever

Photo Short by Jack Dermid



"These beautiful trees will always bring enjoyment to our youth," says R. L. Cooper to Mary Atkinson, who donated the land.

LAST July 24th was a memorable day for the girls—for all citizens—of Wake, Johnston, and Wilson counties. It was dedication day for the Mary Atkinson Girl Scout Camp, an accomplishment made possible through the generosity and hard work of many people.

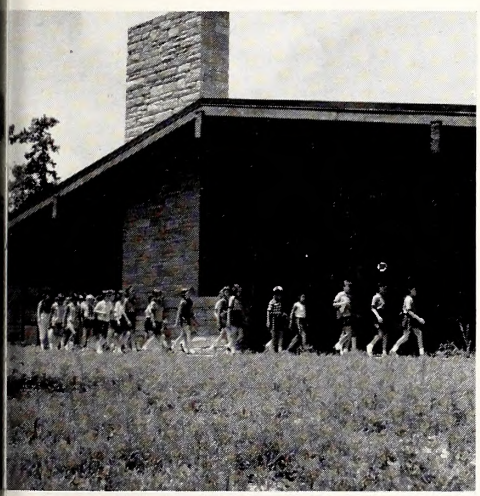
The camp, a long-time dream of those interested in scouting, began the road to reality in 1954 when Mrs. Mary Atkinson of Washington, D. C., and Selma donated 243 acres of land to the area Girl Scout Council. The gift was made in memory of her husband, the late Dr. Wade H. Atkinson, who always "loved Johnston County and the people of North Carolina," although his medical practice carried him away.

The tract, located east of Clayton on Highway 42, is ideal for a summer camp. It consists of rolling hills, open meadows, and beautiful forests of pine and hardwoods where flowers and wildlife abound. It is a place where a youngster can discover and enjoy the world of nature.

With the permanent site obtained, a program for developing the camp was begun with the appointment of a development committee headed by R. L. Cooper of Clayton. Funds had to be raised to pay for camp facilities, experts had to be consulted on technical problems, and construction had to be supervised.

Cooperation and determination paid big dividends. Today, the Mary Atkinson Girl Scout Camp is a reality with an ultramodern dining and recreational lodge, a large lake, tent camping facilities for 48 girls, and great plans for the future.

Last summer, tents provided quarters for girls. Cabins are planned for the future.



An ultramodern lodge—one of the finest in the South—contains kitchen and dining facilities and big recreational area.

A large lake provides swimming, fishing, and boating. Its entire watershed is owned by the camp, guaranteeing clean water.

Nature study and conservation are among the activities at Mary Atkinson Girl Scout Camp. Here, Brownies learn that a green snake is a harmless and fascinating reptile.

UTILITY RIGHTS-OF-WAY

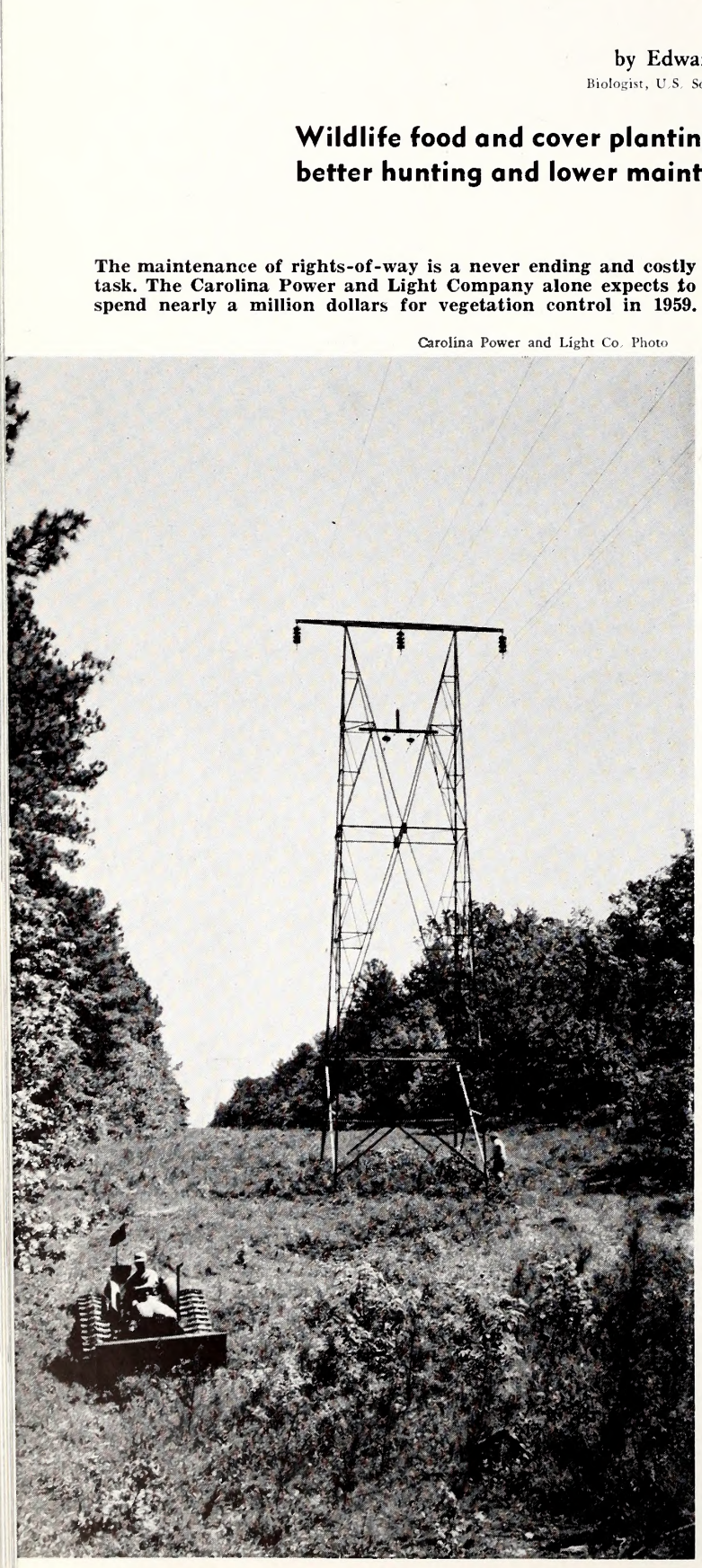
Potential Wildlife Lands

by Edward Ray Smith
Biologist, U.S. Soil Conservation Service

Wildlife food and cover plantings along rights-of-way could mean better hunting and lower maintenance costs for utility companies.

The maintenance of rights-of-way is a never ending and costly task. The Carolina Power and Light Company alone expects to spend nearly a million dollars for vegetation control in 1959.

Carolina Power and Light Co. Photo



FIVE men walked abreast along a power line right-of-way in Pennsylvania. Each man was equipped with a back-pack sprayer, and every tree seedling and stump sprout was given a dripping coat of spray. The job these men were doing is of special interest to wildlife conservationists everywhere. They were changing an ordinary power line right-of-way into one highly beneficial to game animals. And at the same time, they were improving the power line area by reducing maintenance costs.

You don't just cut a swath through the forest, build a power line and forget about it. Tree sprouts shoot up, a dense tangle of plants covers the ground, and Nature does her best to fill the opening in the forest. Trees left to grow could reach up to the lines, short-circuiting the highpowered wires. After ice and wind storms repair crews have to reach isolated points in a hurry, so dense tangles have to be cleared before the emergency occurs. Keeping down vegetation has been a problem ever since the first wires were stretched across the country, so that lengthening the time between maintenance cuttings means dollars saved for power companies.

The maintenance crew in Pennsylvania used a herbicide which killed tree seedlings and sprouts,

giving shrubby vegetation a chance to fill the space with a dense mat resistant to tree growth. The low-growing shrubs lengthen the time between maintenance cuttings, and make it possible for repair crews to reach damaged towers and transmission lines. At the same time, these shrubs provide better food and cover for wildlife.

The North Carolina Wildlife Resources Commission was interested in the Pennsylvania experiment along with other conservation agencies. The land area that can produce game becomes smaller each year. Utility rights-of-way cover a vast area in the Tarheel state—in the Piedmont alone there are 5,895 miles of transmission lines and 45,484 miles of distribution lines. This represents a vast potential for wildlife habitat development.

These lines range in width from 45 to 200 feet. Assuming an average width of 66 feet (one surveyor's chain), then every thousand miles of right-of-way would cover 8,000 acres of land. Although a considerable part of this will be over cultivated land, much remains to offer a boon to Tarheel hunters.

The method used in central Pennsylvania is called "selective basal spraying." While it has worked well in northeastern states, no one knew for certain if it would work in North Carolina. The Wildlife Commission decided to put the method to a test through a research project. The purpose was to evaluate the value of Piedmont rights-of-way under existing maintenance methods as far as wildlife is concerned, and to learn if the basal spraying method would be adaptable and desirable for these areas.

The project was established in the School of Forestry of North Carolina State College under the supervision of Dr. T. E. Maki. The author undertook the study as a graduate student at State College.

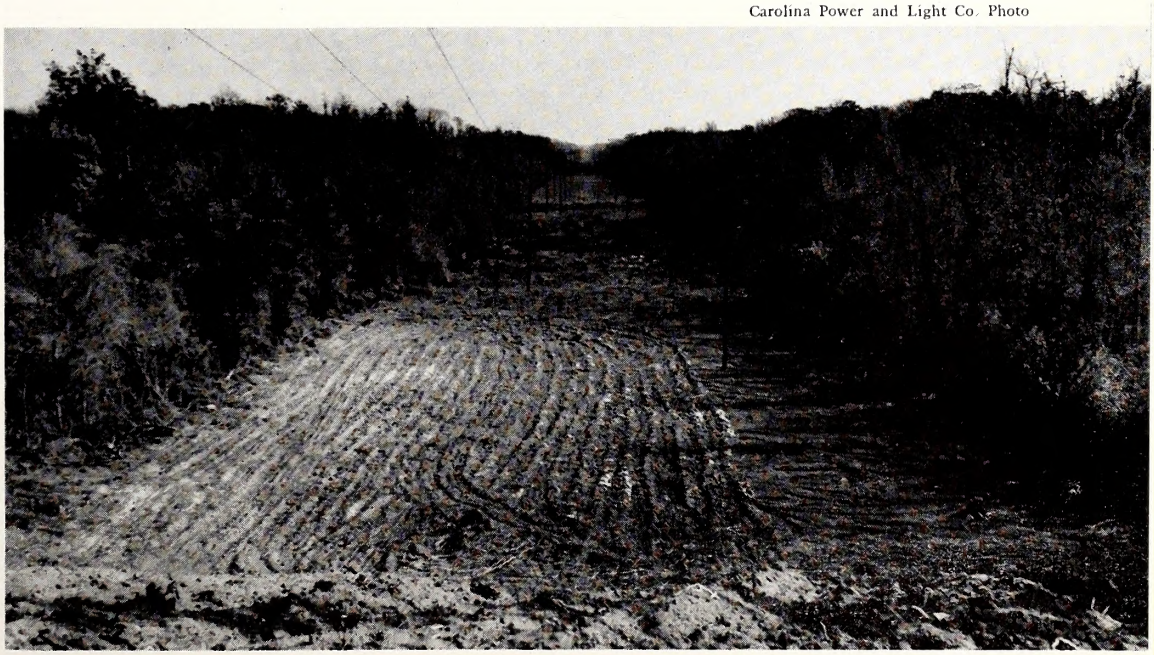
The Piedmont region of North Carolina was choosen as the study area for two reasons. The loss of game-producing areas is proceeding at a faster rate in the industrialized Piedmont, and the hunting pressure is heaviest. One mountain area was chosen along with four Piedmont areas, since the mountain vegetation resembles that of northern states and could provide a comparison with the original study.

The four Piedmont areas were chosen from rights-of-way passing through typical forests. From three to six years had passed since the areas had been cleared. Bulldozing—found to be the most economical method by one power company—was the maintenance method studied. On each of the study areas a detailed examination of the plant life was made. Also studied were the relation between plants and topography, extent of erosion, soil type, and physical and chemical composition of the soil. The existing condition of the rights-of-way for wildlife was evaluated.

In addition to maintenance method the four Piedmont areas have similar plant growths. The ten most common plants were blackberry, partridge pea, cinquefoil, broomsedge, aster, trumpet-flower, strawberry, loblolly pine, bedstraw and wild lespedeza. Other plants frequently found included wood sorrel, panic grasses, Japanese goldenrod, honeysuckle, beggartick, sweet gum, ragwort, Virginia creeper, winged sumac and ragweed. A total of 282 species representing 174 different genera were found on these study areas.

Several differences appeared between and within areas. Older rights-of-way had heavier plant growth as measured in plants per square foot. Growth was sparse on ridge tops, medium on slopes, and very dense in the bottoms. Most of the soil removed from ridge tops and slopes by bulldozing and subsequent

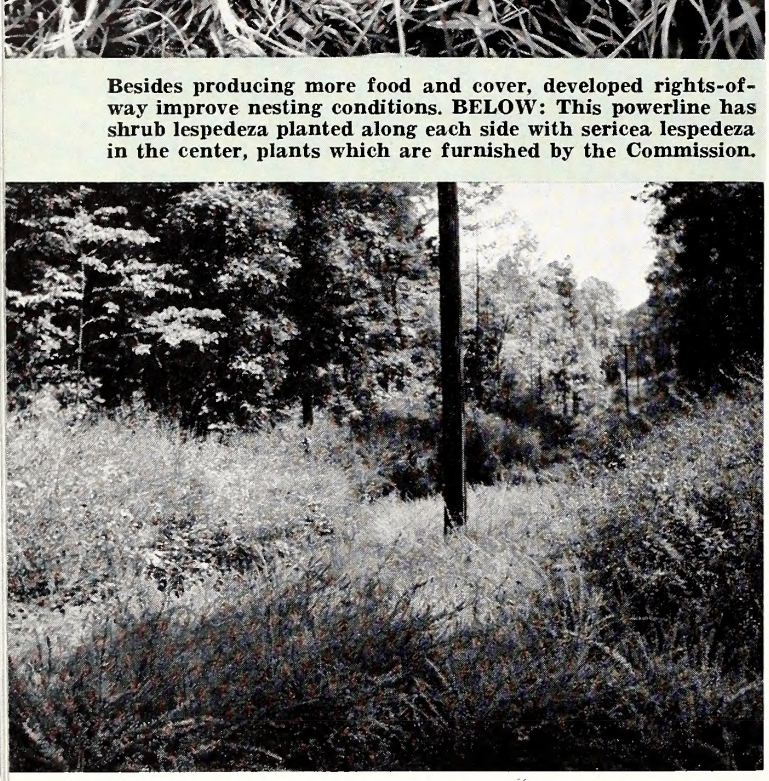
Carolina Power and Light Co. Photo



ub lespedeza planted along dland edges of rights-of- produces an abundance of quality food for small game. icea lespedeza or fescue nted in the center permits ess to both hunters and maintenance crews.

A powerline right-of-way after clearing with bulldozer and disk harrow. Now is the most practical and economical time to make wildlife plantings, which will slow down or prevent invasion by trees to cut future maintenance costs while giving game a boost.

Besides producing more food and cover, developed rights-of-way improve nesting conditions. BELOW: This powerline has shrub lespedeza planted along each side with sericea lespedeza in the center, plants which are furnished by the Commission.



erosion was deposited in the bottoms. Sometimes this deposit was actually four feet and more in depth as a result of bulldozing and removal of protective ground cover.

Two variations were found in the type of plants. On severely eroded areas buttonweed, bracted plantain and ragweed were prominent. Bottom lands with water tables near the surface suported sedges, rushes, willow, alder, blue boneset, cardinal flower and water horehound.

Soil type and the soils' chemical properties were not controlling influences. Ability of the soil to retain moisture did appear significant.

When the Piedmont plants were compared with Pennsylvania species, it became apparent that the basal spraying method is not practical in Piedmont North Carolina. The Pennsylvania method encouraged growth of shrubs; except on bottomlands shrubs are not important among plants growing along maintained Piedmont rights-of-way. Only one bottomland plant seems capable of taking over and remaining dominant, Japanese honeysuckle.

How does the bulldozing method affect growth of wildlife food and cover plants? The best producers of wildlife foods found were mainly seasonal plants —blackberry, beggartick, Japanese honeysuckle, strawberry, lespedeza, partridge pea, ragweed, buttonweed, fescue, panic grasses, greenbrier and grape. Cover plants included young pines, honeysuckle, stump sprouts, and blackberry. The bulldozed areas appear to begin producing food and cover about three years after maintenance work has been done, and the period of usefulness seems to continue then for four or five years. When the areas reach their peak value to wildlife, power line requirements dictate that they be bulldozed again, and the cycle starts all over.

Mountain rights-of-way are often cleared by hand-cutting rather than by bulldozing. The sample area studied had more stump sprouts, much denser shrubby cover, and much less herbaceous growth. Wildlife food and cover values seemed higher, too. The basal spraying method could possibly work to advantage in the mountains.

In the Piedmont, chemical control does not seem practical and bulldozing is a temporary method that must be repeated again and again. What then is an answer that would serve both to maintain the right-of-way and to encourage wildlife populations? One answer seems to be bringing in new plants such as bicolor and sericea lespedeza.

The potential of bicolor and sericea lespedeza was especially apparent along a right-of-way between Henderson and Oxford. Someone—or a group, probably a wildlife club—planted nearly a mile of bicolor and sericea on that area. Not only was growth good—so good that travel on foot was difficult—but very few tree seedlings of any kind were observed. This planting was fine for wildlife, but of no help in power line maintenance; the planting pattern produced a solid and nearly impenetrable mixed stand of the two plants.

It would have served both wildlife and power line purposes if the shrub lespedeza had been planted in rows next to the woods and the sericea sown as a solid strip down the center. In wider rights-of-way the sericea could be planted as two strips in front of bicolor borders, with a center lane of perennial sod-forming grass.

Either of these two methods would have more value than a single mixed stand. For wildlife it would create a better "edge effect." For the power company it would afford easier access to the lines and towers for repair. Depending on the width of a particular right-of-way, one of these two patterns is recommended for landowners who wish to improve their lands for wildlife. For advice in selecting a pattern, consult your Wildlife Commission biologist or work unit conservationist from the Soil Conservation Service.

Ants On The March

In the Southeastern U. S., a problem with the fire ant exists. The U. S. Department of Agriculture, at least, is making a costly effort to exterminate the fire ant. In contrast, ants in Germany are being placed to useful functions. According to Eva Schiffer, of the University of Massachusetts at Amherst, a publication, *The Bulletin,* a weekly survey of German affairs issued by the German Federal Government, recently carried the following article:

"The most radical population shifts in the Federal Republic today are being made by ants, it has just been revealed. In two large operations, millions of ants have been moved from areas where there was a surplus and deposited in sparsely populated regions. Just recently 20 large barrels of red ants were moved from Julich to the Kempen area, where their function will be to help a burned-over region recover from a bad forest fire in 1947. The second vast upheaval in West Germany has occurred outside of Mannheim, where 15 million black ants, purchased approximately enough in the Black Forest, have been delivered. Their job is to combat certain insects attacking in particular the fir trees and at present endangering the forested areas of the region."

P-R Dispute Settled At International Meeting

Apparent settlement of the prolonged dispute among the states over apportionment of Federal Aid (Pittman - Robertson) wildlife funds was perhaps the outstanding achievement at the 49th annual convention of the International Association of Game, Fish and Conservation Commissioners, held September 14-16 at Clearwater, Fla.

The Association's federal aid committee brought in a report proposing that in calculating the number of license holders for fund-allocation purposes, a state should be given credit for the number of small-game licenses plus the number of big-game licenses issued. This recommendation, couched in the form of a resolution, was voted down 26 to 16 on a roll call of the States.

Next the convention considered a motion endorsing the interpretation of the solicitor of the Department of the Interior, who has held that the law requires certification of the actual number of individual license holders, regardless of the number of special or duplicate permits that may be issued by a state. This policy motion carried on a voice vote without audible dissent.

4-H'er Honored

Postmaster at Mt. Airy recognized the good work one of the county 4-H'ers had done in wildlife conservation, sent her a first issue of the Wildlife Conservation stamp in appreciation.

PROTECTOR OF THE MONTH

John Harold King

Johnston County Wildlife Protector John Harold King was born in Ohio, and after graduation from high school was a professional baseball player in the American Association and the International League for a number of years. In the mid-Forties, he moved to North Carolina and became a Wildlife Protector for Wilson County. Later, he was made Supervisor of Division C, and in January, 1948, he moved into the position of Wildlife Protector for Johnston County. He has attended all of the Wildlife Protectors' training schools, conducted by the Institute of Government, as well as the Highway Patrol school of Ohio.

Wildlife Protector King is married to the former Margaret Aycock of Smithfield, and they have two sons, the eldest of which is an engineering student at N. C. State College. The Kings reside in Smithfield.

Mr. King has served as Scoutmaster of Troop 22 in Smithfield, District Chairman of Health and Safety Committee, District Chairman of Camping and Activities Committee, member of the Advancement Committee, and merit badge counselor for both Girl and Boy Scouts. He is an active member of the Johnston County Wildlife Club, the Benson Rod and Gun Club, the Johnston County Peace Officers' Association, and he and his family are members of the First Presbyterian Church in Smithfield. An avid hunter and fisherman, Mr. King has participated in these sports in many parts of the North American continent.

ENFORCEMENT RECORD FOR SEPTEMBER

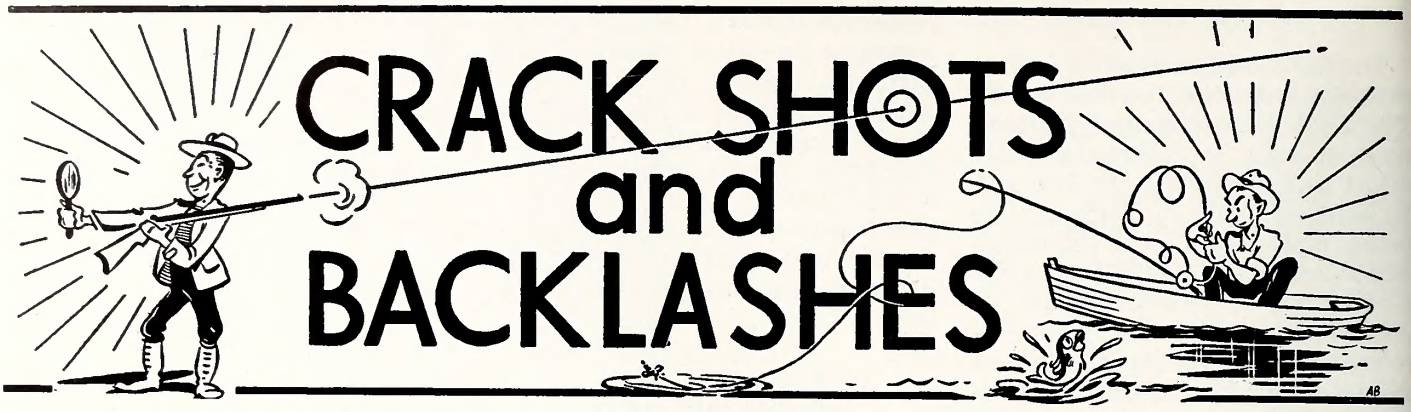
Persons checked	21,819
Total prosecutions	547
Total convictions	516
Total cases not guilty	17
Total cases nol prossed	14
Total fines collected	$2,460.75
Total costs collected	$3,972.05

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Must a hunter surrender his gun to a wildlife protector for inspection when requested to do so by the officer?

ANSWER: Chapter 207 of the 1959 Session Laws amended G.S. 113-104 to make it unlawful for anyone hunting wild birds and animals with a gun to refuse to surrender it for inspection upon the request of a duly authorized officer.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

December is a month when the season is open on all of North Carolina's variety of game except rails and gallinules. A record number of hunters will take to the woods, fields and marshes. This does not mean that there must also be a record number of hunting accidents. We have a fairly good hunting accident record here in the Tarheel State. Let's keep that record and improve it. PLAY IT SAFE!

Here is a reminder to y'all having boats powered by more than ten horsepower: you will need to get that boat registered beginning January 1, 1960. If you don't have your application for your registration and number you can get it from any hunting and fishing license dealer or from the Raleigh office of the Wildlife Resources Commission.

* * * *

If you don't think Tarheel wildlife protectors are a fine bunch of fellows, ask Cecil Allran, wildlife protector in Lincoln County. Cecil had a long stretch in the hospital, some insurance, but a whopping big medical bill. The other fellows chipped in and took Cecil's financial worries away from him. He is most grateful. . .

* * * *

C. M. Abbitt is the superintendent of the Roxboro water works. He had some interesting experiences with beavers not long ago, and was kind enough to send us an account:

Several years back someone secured several pairs of beavers from another part of the state and placed them near the old Roxboro City Lake. This lake is used as a rain water storage for the Roxboro Water Department.

Now, it took the beaver couples a few years to reproduce a colony and get interested in the new neighborhood; they began by separating into several groups, and each group took different areas around the lake to homestead. There was no need of a dam since the lake existed. The business at hand was to construct lodges which they began doing and built several in number.

The beaver population did not give me any trouble until this summer (1959) when the very low rainfall from June until October on our nine square mile watershed plus the water pumped out of the lake lowered the water level.

Now, Mr. Beaver became alarmed because his lodge was getting too high out of the water, so, what would any intelligent beaver do? They put out inspection parties to find where the water was getting out of the lake. One party made the discovery, and in no time at all were busy plugging up the hole. The hole happened to be the intake to the pump well. All of Roxboro's water supply passes through this twenty-inch opening in the concrete wall of the pump well. One night in early September the operator at the filtration plant called me to investigate the cutting of the raw water supply. With the Lake Warden, Mr. Hubert Fox, the Assistant Water Superintendent, John Blanks, and a boat, we rowed up in back of the pump station to find green branches and small limbs pushed tightly into the twenty-inch opening of the well. We pulled all of the limbs and sticks out and hauled them to the water edge. The three of us debated how could fresh green branches float across the lake with no current to guide them to the pump station.

All went fine for three days, then on the third night the same thing happened again. This time we were certain someone had delibertly packed fresh branches in the opening and it was done in the early evening. This time mud had been placed in the branches to secure the stoppage.

Knowing that a beaver lodge was just across the lake we placed the blame on Mr. Beaver. The next day we started building a large wire screen to place over the hole, but before we could finish the screen and place it over the hole, Mr. Beaver and his "gang" had plugged it up again. I knew the beaver repair crew worked after dark, so I hung a 100-watt lighted bulb out of the window over the intake opening hoping they would not work in the bright light. That did the trick; no more beaver trouble as long as the light burned.

If you have a leaky dam, call in Mr. Beaver and his work crew—they will make the repairs, after dark.

Greetings from England

DEAR SIRS: Since January this year I have received regularly a copy of your publication. It has given me a great deal of pleasure to read it each month, and to learn the way you help to assist in the protection of wildlife in North Carolina. I have visited your wonderful state twice in the last few years, and if my health improves, I hope to call again next year on my daughter Mrs. Graham Ivey of Candler. Before she went to reside in the U.S.A. my daughter was a very keen student of Nature, and she kept many pets while in England. She now has many animals and birds on her small holding, and she is quite a good animal doctor in her own

way. It is through her I get your official publication.

I notice the North Carolina Wildlife Federation is holding their annual meeting in Pinehurst on October 2-3. I would like to take this opportunity of wishing them a very happy gathering, and also to wish you continued success in your monthly publication. With best wishes for the future. W. H. NEATHERWAY, 156 FELBRIGGE ROAD GOODMAYES, ILFORD, ESSEX, ENGLAND

Guide License

DEAR SIRS: Last year I purchased both State guide license and State hunting license. Is it necessary for me to buy both or may I hunt with just the guide license?

I subscribe to Wildlife and find it very interesting. The pictures also help my children to know and respect wildlife. JOHN B. ABERNATHY, DALLAS, N. C.

We checked this with our Wildlife Protection Division and the official interpretation of the statutes is that both licenses are required if you both hunt and guide hunters.

Fish Skeleton

DEAR SIRS: In my science project at Farmville High School for this year I am interested in fish life. At present I have on hand a sheepshead fish head or bones thereof and would like to have a picture of the skeleton of a sheepshead fish so that I might be able to put these bones in place.

I was wondering if you had any information along this line or knew where I might be able to obtain same. I would appreciate any help that you might be able to get for me. I am enclosing a self-addressed stamped envelope. If you know of any other resource that I might be able to write for any information on this project, I would appreciate your advising me.

My family takes your magazine and all of us enjoy and look forward to receiving it each and every month. Thanking you for your help or advice. DEAN OGLESBY, FARMVILLE

Several biological supply houses can supply charts for this purpose. We suggest getting another fish and letting insects remove the flesh from the bones.

Thousands of people visited the Wildlife Commission's State Fair exhibit in October. The exhibit, which graphically interprets the new Motorboat Safety Act, will be shown at boat and sports shows through the state during the next year.

Wildlife Calendar

Announcements of coming events are welcomed from wildlife clubs, field trial associations, and other organizations sponsoring hunting, fishing and boating activities of regional and state-wide interest. Club secretaries should mail complete information at least six weeks in advance of publication date to "Wildlife Calendar" Editor, Wildlife in North Carolina, Box 2919, Raleigh.

Dec. 4-6 Field Trials, Carolina Amateur Field Trial Club, at Sandhills Area.

Dec. 6-11 Game Hunting Short Course, N. C. State College, at Southern Pines.

Dec. 7-11 Pointer Club of America Field Trials, at Sandhills Area.

Dec. 11 Second segment of dove season opens at noon, statewide.

Dec. 14 Antlerless deer hunts at Pisgah, Daniel Boone, Mt. Mitchell, Uwharrie, Sandhills. See managed hunt regulations for further details.

Dec. Small game hunts on many wildlife management areas. See managed hunt regulations for further details.

Jan. 1 Motorboat Safety Act effective.

Jan. 1 1960 fishing licenses on sale.

Strange Bug

DEAR SIRS: Enclosed is a small box containing a bug which is strange to me.

As I was walking through the back yard tonight I noticed a glowing object in the grass. At first I thought it was just a regular lightening bug or firefly, but upon further examining it I noticed it was not.

I have been taking your magazine Wildlife in North Carolina for several years and enjoy reading the comments and questions sent in by fellow subscribers. Could you identify this bug for me and tell me a little about it. This may be out of your line of work; if so could you direct me to the right persons. EZRA E. GOUGH, WINSTON-SALEM

Bill Hamnett, our nature expert says the insect you inquired about is one of the 50 or so species of fireflies found in our country. The stage of development you sent is a mature wingless female; although some females develop wings. The luminescence you observed is a characteristic of this particular development. This group of insects is of little economic importance and quite harmless. The one interesting fact of this insect is that it is constantly being studied in order that man may solve the method of making "cold" light, which the tiny insect has already done regardless of his inferior status to man.

4-H Activities

Because of interest and work with song birds, Mr. John K. Terres, editor, *Audubon Magazine,* visited two of the 4-H wildlife project participants to see first hand the outstanding work they had done and reported their accomplishment in his magazine.

One 4-H wildlife project member reported that their home garden needed no insecticides because the song birds they had befriended all winter and spring kept their garden clean.

Hornets in Squirrel Box

DEAR SIRS: I have been reading your magazine Wildlife for more than three years and I look forward to every issue. Enjoy reading all the articles about hunting and fishing. In one issue I read an article about erecting squirrel nesting boxes to increase the population of squirrels. Last fall I built 12 squirrel boxes and erected them in some woods near my house. Last week I decided to check them to see if any of them had been used. I found that five of the boxes contained honey bees; one of the boxes contained a a swarm of hornets; and six of the boxes contained nests in which squirrels had used to rear their young.

Thought that you would be interested to know about the outcome of the squir-

rel boxes. Could you tell me what to do about the honey bees and hornets? WAYNE SHEPHERD, SALISBURY

Eat the honey and stay away from the hornets—Ed.

Conservation and Congress—1959

Few major proposals affecting the national conservation estate were enacted by the 86th Congress, 1st Session. Although a surprising number of bills among the nearly 12,000 introduced in the House and Senate during the past session relate, in some way, to fish and game, water, public lands, national forests and parks, and mining, few pose significant changes in natural resources management and recreational opportunity, according to the Wildlife Management Institute.

This does not mean that more may not be accomplished in the second session, however. All bills that were not disposed of this year carry over into the closing session in 1960, and there always is the chance that one or more of the stronger proposals that failed to clear the legislative mill this year will win approval before the session ends.

Water Pollution Control

Followers of the years-long controversy over clean water looked for sharp conflict to arise during the 1959 session over the matter of continuing Federal grants-in-aid for the construction of State-approved municipal sewage treatment plants as authorized by the 1956 Federal Water Pollution Control Act. Significantly, the conflict centers not so much on a separation of interest within Congress as it does between a coalition of water-conscious legislators on the Hill and the Administration, which has been advocating termination of the grants program.

The first move against the popular program was a Budget Bureau recommendation to slash to $20 million the current year's funds, a cut of $25 million from those regularly provided. The bureau made the added comment that no funds would be requested for the following fiscal year. Congress showed determination to continue its drive for water pollution control, however, and voted the full $45 million for the current year's grants. The U. S. Public Health Service presently has about 625 applications for grants assistance involving about $63 million in Federal financing. Operation of the program to date has shown that each $1 invested by the Federal Government stimulates nearly $4.30 in local contributions toward sewage treatment plants. Few Federal programs can show such a record. The Federal highway program, for example, lays out about $9 for each $1 in non-federal funds.

A second show of strength by the anti-pollution forces was House and Senate passage of a bill which amends the 1956 Pollution Control Act by broadening the grants-in-aid features so that the annual assistance level will more nearly equal the actual need. The House and Senate bills differ somewhat, and the lateness of the congressional session ruled out the calling of a conference to draft a compromise version. This will be done early next year and sent to the President, who was described by the minority floor leader during the Senate debate as being opposed to continuing the Federal grants program.

The geese—more than 12,000 of them—have returned to Gaddy's Pond near Ansonville for the winter. Visitors invited.

Insiders are pointing to two factors which may help water pollution control win the support of the White House. The wide margin by which the measure cleared both Houses indicates a potential to override a presidential veto should it occur. Secondly, more than any other natural resource issue in recent years, clean water has attracted the interest of the American people. This interest has been responsible for repeated victories of the anti-pollution forces in winning funds to continue the authorized program in the face of continuous Budget Bureau disapproval.

Fish and Wildlife

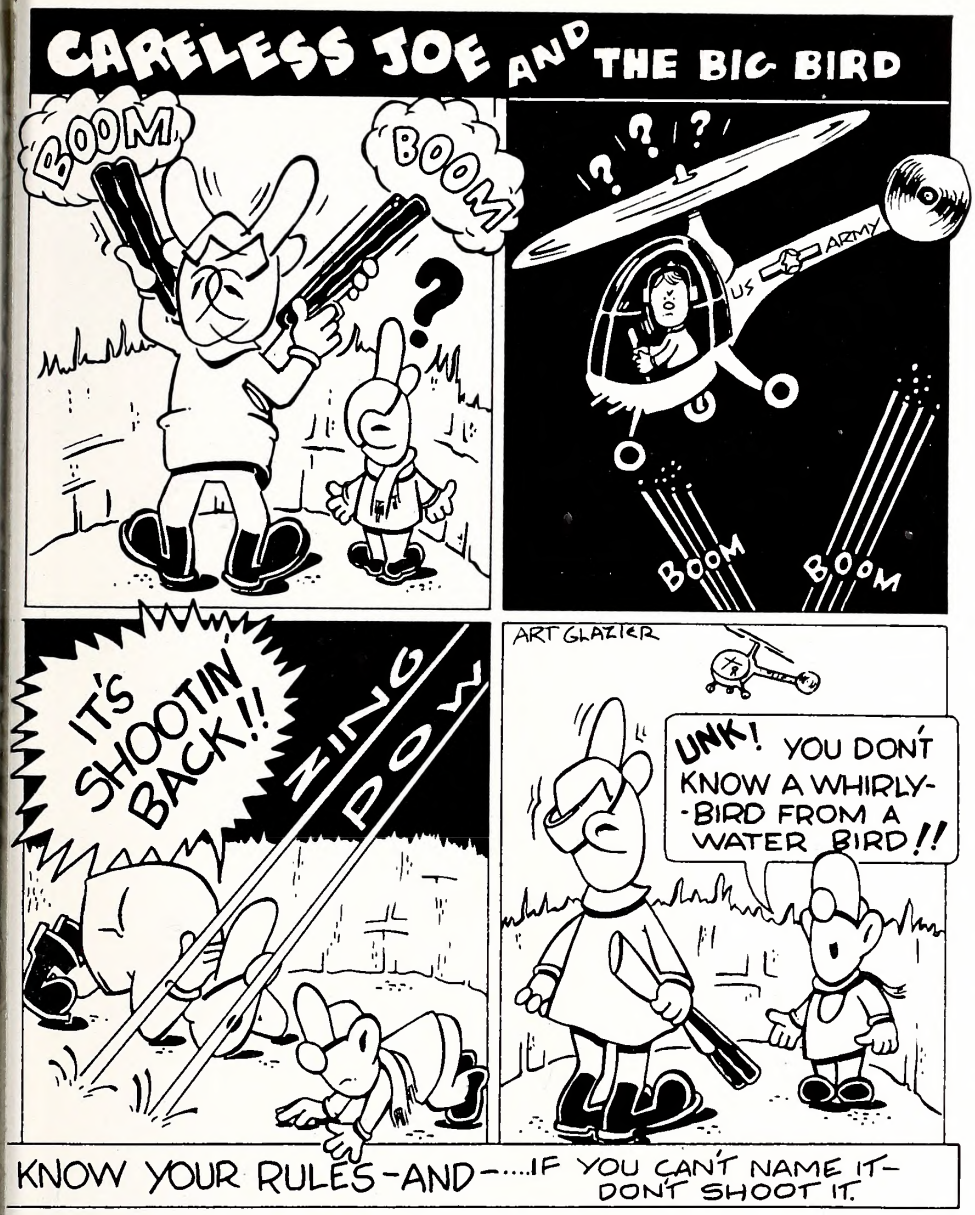
Many proposals were introduced which in some way would affect fish and game programs. Many hearings were held by congressional committees and some of the bills were reported favorably. A number passed at least one House, but few were enacted into law.

A key was provided for further unlocking of the unknowns of wildlife-pesticides relationships with passage of an authorization of $2,565,000 annually for research into the effects of insecticides and other chemical poisons on fish and wildlife resources. Last year Congress authorized $280,000 for this program, but as stressed in the House committee's report on the new authorization, "Since

Fox Hunters Gather at Caswell Area

When the North Carolina Fox Hunters Association held its annual field trials on the Caswell Management Area 349 dogs were entered. Shown here are the winners in the Male Derby class at a bench show at the end of the event held October 15, 16, 17.

As far as this young man is concerned two Walker Hound puppies stole the entire show. The picture was taken in the kennel-stable provided for field trial organizations by the Wildlife Commission. Dogs from many states were entered.



the enactment of that legislation it has come to the attention of the committee that adverse effects upon wildlife of the insecticide programs being carried on, particularly by the Department of Agriculture, have proven much greater than anticipated."

House approval was given a pioneering proposal which seeks to acquire land for fish and wildlife purposes in conjunction with the Jackson lock and dam project on Alabama's Tombigbee River. This proposal is important in that it is the first case in which additional lands are being proposed for acquisition for fish and game at a Federal impoundment under the terms of the Coordination Act which Congress strengthened last year.

Sport fishing aspects received a needed boost with enactment of a $2.7 million authorization for research into the biology of marine game fishes. A second sound proposal, which cleared the Senate and went to the House, seeks to establish a research program to investigate the fisheries resources of large impoundments created by the Federal construction agencies. Improved understanding of fish dynamics at large impoundments should enable biologists to take steps to provide continuous good fishing for species sought most by sports anglers.

Other key proposals awaiting consideration next year are bills which would establish a more comprehensive program for the development and maintenance of hunting and fishing opportunity on military bases; create a National Wildlife Disease Laboratory for study of the diseases of mammals and birds; and give formal sanction to the long-existing program for the training of graduate students in wildlife sciences under a cooperative program of the U.S. Fish and Wildlife Service, land grant colleges, State fish and game departments, and Wildlife Management Institute.

Action may also be taken to establish congressional policy to guide the Federal Power Commission and the Federal construction agencies in the location of dams in the Middle Snake River drainage of Idaho and Oregon. Construction interest now settles on the junction area of the Snake and Salmon Rivers, a last-remaining crossroad in the life cycle of salmon and steelhead trout of the oft-dammed Columbia River Basin. Resolutions have been introduced which would limit construction of high dams pending solution of the multiple problems facing the passage of migrating fish around those unnatural barriers.

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